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# **ADOLESCENTS' FUTURE ACADEMIC PROSPECTS: PREDICTORS AND MENTAL HEALTH OUTCOMES**

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# Adolescents' Future Academic Prospects: Predictors and Mental Health Outcomes

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# ABSTRACT

In the context of a changing labor market and increasing demand for higher education, young people may face challenges and uncertainty about their futures. Sweden has also faced many changes to the education system, as well as decreasing trends in youth mental health, especially among girls. These factors may affect how young people perceive their futures, and how they envision their future academic prospects. While academic stress is generally perceived as negative, motivation and goal setting tend to correlate with better achievement and well-being. Academic expectations refer to how far people believe that they will go in school, while academic aspirations refer to how far people want to go in school. Less is known about how these perceived future academic prospects relate to mental health. Additionally, little is known about which modifiable factors may predict future academic prospects. This thesis aims to explore the relationship between future academic prospects and mental health among adolescents and to better understand the contextual and individual factors which predict the formation of adolescents' future academic prospects.

The studies included in this thesis are based on the KUPOL (a Swedish acronym for Knowledge about Young People's Mental Health and Learning) cohort study. Adolescents (age 13 at baseline) answered questionnaires during three annual waves encompassing measures of their academic expectations, aspirations, and future goals, as well as their mental health, sense of identity, relationships with their parents, and academic achievement. Parents of the adolescents also answered questionnaires encompassing measures of their academic expectations and aspirations for their children as well as sociodemographic characteristics. School-level data were also collected at the schools that the adolescents attended using anonymous questionnaires measuring the pedagogical and social climate of the school given to teachers and 9<sup>th</sup> grade students.

Adolescents future aspirations and goals at baseline were found to be associated with better mental health in terms of both internalizing and externalizing symptoms at one year follow up (study I). This relationship did not appear to differ according to gender. Similarly, parents' expectations for their adolescent children to attend university, as well as the agreement of parents' and children's university expectations were associated with a decreased likelihood of the adolescent experiencing problematic externalizing symptoms (study II), though these associations were not found when considering internalizing symptoms. Furthermore, teacher-rated measures of the overall school climate, as well as the specific domains of academic and disciplinary expectations and support for students were associated with an increased likelihood of the adolescents aspiring to university (study III), but no such relationships were apparent when using the student report of the school climate measures. Finally, adolescents' academic grades, engagement and parental engagement were associated with adolescents resolving their uncertainty in expectations between 7<sup>th</sup> and 9<sup>th</sup> grade, while academic grades, engagement, and parental expectations were associated with adolescents raising their expectations between 7<sup>th</sup> and 9<sup>th</sup> grade (study IV). Identity synthesis and mental health, however, were not associated with either of these outcomes.

In light of these findings, it is important to find ways to encourage adolescent future prospects at the family and school level with the potential to improve their mental health.

## LIST OF SCIENTIFIC PAPERS

- I. Almroth, M. C., László, K. D., Kosidou, K., Galanti, M. R. (2018). Association between adolescents' academic aspirations and mental health: A one-year follow-up study. *European Journal of Public Health*, 28(3), 504-509.
- II. Almroth, M. C., László, K. D., Kosidou, K., Galanti, M. R. (2019) Academic expectations and mental health in adolescence: A longitudinal study involving parents' and their children's perspectives. *Journal of Adolescent Health*, 64(6), 783-789.
- III. Almroth, M. C., László, K. D., Kosidou, K., Galanti, M. R. Teacher – but not student rating of the pedagogic and social climate in school predicts adolescents' academic aspirations. (Manuscript).
- IV. Almroth, M. C., László, K. D., Kosidou, K., Galanti, M. R. Individual and familial factors predict formation and improvement of adolescents' academic expectations: A longitudinal study in Sweden. (Manuscript).

### **Related publication in appendix**

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# CONTENTS

1	Introduction.....	7
2	Background.....	8
2.1	Adolescence.....	8
2.2	Mental health in adolescence.....	8
2.3	Changes in the labor market and higher education .....	9
2.4	The Swedish educational context .....	10
2.5	Academic expectations and aspirations.....	11
2.6	Future academic prospects and mental health .....	11
2.6.1	Own future academic prospects .....	12
2.6.2	Parental expectations and aspirations for their children .....	13
2.7	Contextual and individual predictors of future academic prospects.....	14
2.7.1	School factors .....	16
2.7.2	Family factors .....	16
2.7.3	Individual factors .....	17
3	Aim.....	18
3.1	Research questions .....	18
4	Methods .....	19
4.1	The KUPOL study.....	19
4.1.1	Data collection and design.....	19
4.1.2	Study population .....	22
4.1.3	Ethical considerations.....	22
4.2	Study variables .....	23
4.2.1	Future academic prospects.....	23
4.2.2	Mental health .....	25
4.2.3	School climate variables .....	26
4.2.4	Other covariates .....	26
4.3	Statistical analysis.....	28
4.3.1	Descriptive characteristics .....	28
4.3.2	Associations.....	28
4.3.3	Accounting for hierarchical data structure .....	28
4.3.4	Effect modification.....	29
4.3.5	Control for confounding .....	29
4.3.6	Secondary analyses .....	29
5	Results .....	31
5.1	Characteristics of the KUPOL cohort .....	31
5.1.1	Baseline characteristics.....	31
5.1.2	Trends in future academic prospects by grade .....	32
5.1.3	Prevalence of self-assessed mental health problems by grade.....	33
5.2	Associations between future academic prospects and mental health.....	34
5.2.1	Do adolescents with higher expectations experience worse mental health? .....	34

5.2.2	Relationship between high parental expectations and their children's mental health.....	35
5.2.3	Agreement between parent and child expectations and children's mental health.....	35
5.3	Contextual and individual predictors of academic expectations and aspirations .....	36
5.3.1	Does school climate predict adolescent academic aspirations? .....	36
5.3.2	Resolving uncertainty in adolescent expectations between 7 <sup>th</sup> and 9 <sup>th</sup> grade.....	37
5.3.3	Raising adolescent academic expectations.....	38
5.4	Sensitivity analyses.....	39
6	Discussion.....	40
6.1	Summary of main findings.....	40
6.2	Positive future prospects or academic stress?.....	40
6.3	Bidirectional relationship between future academic prospects and mental health .....	42
6.4	Future academic prospects shaped by context.....	43
6.5	Educational factors in relation to future academic prospects.....	44
6.6	Uncertainty in expectations.....	45
6.7	The role of gender .....	47
6.8	Academic prospects in an egalitarian educational system.....	47
6.9	Casualties in the current academic system .....	48
6.10	Unmet expectations .....	49
6.11	Limitations and methodological considerations.....	49
6.11.1	Selection bias, attrition, and generalizability.....	49
6.11.2	Information bias .....	50
6.11.3	Confounding .....	51
6.12	Implications and future research.....	52
6.12.1	Implications .....	52
6.12.2	Future research.....	52
7	Conclusions.....	53
8	Acknowledgements .....	54
9	References.....	56
	Appendices .....	71



## LIST OF ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
CES-DC	Center for Epidemiological Studies Depression scale for Children
CI	Confidence intervals
FG	Future aspirations and Goals scale
FSL	Family Support for Learning scale
KUPOL	Knowledge about Young People's Mental Health and Learning study (Kunskap om Ungas Psykiska Ohälsa och Lärande)
OECD	Organization for Economic Cooperation and Development
OR	Odds ratio
PESOC	School Pedagogical and Social Climate instrument
PISA	Program for International School Assessment
SDQ	Strengths and Difficulties Questionnaire
SEI	Student Engagement Instrument
SIRIS	The National Agency for Education's internet-based results and quality information system (Skolverkets Internetbaserade Resultat och kvalitetsInformationsSystem)

# 1 INTRODUCTION

The apparent rise in youth mental health problems has been and continues to be an enormous public health concern in many different settings. Sweden has seen a particularly sharp increase in mental health problems compared to other neighboring countries (Bremberg, 2015), and this is especially true concerning mental health problems among girls (The Royal Swedish Academy of Sciences, 2010). The reasons, however, are not entirely clear.

Paralleling these increases in mental health problems, the Swedish school system underwent massive changes beginning in the 1990s. The entire school system was quickly decentralized, and policy changes allowed for the emergence of publicly funded but privately-run schools and free choice of school (Wiborg, 2015; Wikström, 2006). It has also been argued that this decentralization and privatization of the school system has resulted in greater inequality between students and between schools (Berhanu, 2010). Additionally, no participating Organization for Economic Cooperation and Development (OECD) country saw a greater drop in the Program for International School Assessment (PISA) results than Sweden in the first decade of the 2000s (OECD, 2015).

In addition to these trends, young people are generally disproportionately disadvantaged in the current labor market (International Labour Organization, 2018). Many jobs are becoming more precarious (Kalleberg, 2011), and higher education has been said to be increasingly important for career prospects in the Swedish setting (Socialstyrelsen, 2010). This may affect how young people see their future, as well as how parents see the future for their children.

The KUPOL study (Knowledge about Young People's Mental Health and Learning or Kunskap om Ungas Psykiska Ohälsa och Lärande in Swedish) is a large-scale longitudinal study of adolescents, their parents, and their schools in Sweden which was initiated with the overall intention of elucidating complex relationships between school factors and youth mental health (Galanti et al., 2016).

While it has been argued that the increase in youth mental health problems in Sweden may be related to perceived academic demand and stress (West & Sweeting, 2003), educational motivation and goal setting have often been found to be related to more positive mental health (Heckhausen, Chang, Greenberger, & Chen, 2013). There is a need for a better understanding of how academic expectations and aspirations specifically relate to adolescent mental health. Furthermore, a better understanding of which modifiable individual or micro-level factors may influence the formation of young people's academic expectations and aspirations within the context described above is needed.

This thesis, therefore, explores the relationship between own and parental academic expectations and aspirations and adolescent mental health as well as individual, parental, and school factors which predict high academic expectations and aspirations using longitudinal questionnaire data from the KUPOL study.

## **2 BACKGROUND**

### **2.1 ADOLESCENCE**

Adolescence is a time of cognitive change where information processing and abstract thinking rapidly improve (Coleman, 2011). These developmental processes help to facilitate future planning and decision making. At the same time, decisions become especially important as adolescents near educational transitions which specifically require choice and future planning (Rimkute, Hirvonen, Tolvanen, Aunola, & Nurmi, 2012).

External educational demands from parents and teachers tend to rise during this period, as education tends to become more performance oriented (Gnambs & Hanfstingl, 2016). For example, the amount of homework often increases during the middle school transition and more emphasis is put on academic grades. Because cognitive ability improves during this developmental phase, more is generally expected of young people in relation to their education, and more emphasis is put on preparing for higher education and working life (Rimkute et al., 2012).

Contrary to the increase in academic demand, intrinsic motivation in education has been found to gradually decline during adolescence (Gnambs & Hanfstingl, 2016). Perceptions of school and schoolwork also generally tend to become more negative. Feeling pressured by schoolwork tends to increase, while liking school tends to decrease between the ages of 11 and 16 in nearly all European countries (World Health Organization, 2016). The way that adolescents perceive their own ability in relation to school also tends to decline during this period (Wigfield, Eccles, Iver, Reuman, & Midgley, 1991). Additionally, mental health problems and low well-being tend to increase with age during adolescence (Folkhälsomyndigheten, 2014b).

### **2.2 MENTAL HEALTH IN ADOLESCENCE**

Mental health problems is an umbrella term used to describe many types of mental health difficulties including symptoms which may be present in the absence of a formal diagnosis. It has been estimated that up to 20% of young people have experienced some type of mental health problem (Kieling et al., 2011). Indeed, neuropsychiatric disorders are the most common cause of morbidity among those between the ages of 10 and 24 years old globally (Gore et al., 2011). Mental health problems often have an early onset and persist into adulthood (Patel, Flisher, Hetrick, & McGorry, 2007). The frequency of these mental health problems, as well as the suffering which individuals experience as a consequence is a serious public health concern.

The most prevalent mental health problems in general are anxiety and depression which can be classified as internalizing problems, followed by externalizing problems such as conduct disorder, hyperactive disorder, intermittent explosive disorder, and oppositional defiant disorder (Kessler et al., 2009). There is evidence that both internalizing (Bor, Dean, Najman, & Hayatbakhsh, 2014) and externalizing problems (Collishaw, Maughan, Goodman, &

Pickles, 2004) have increased among adolescents over the last decades. This increase in externalizing problems was measured using the same instrument on different cohorts over a 25-year period and thus, appears to potentially exist beyond changes in awareness and diagnostic thresholds (Collishaw et al., 2004).

One review indicated that the rise in mental health problems was particularly steep in Sweden between 1990 and 2010 compared to other Scandinavian countries and the Netherlands (Bremberg, 2015). The number of young people experiencing mild anxiety problems tripled between the 1990s and the early-2000s (Folkhälsomyndigheten, 2014a; The Royal Swedish Academy of Sciences, 2010). After a brief plateau in the early 2010s, there are indications that internalizing problems continue to grow among youth in Sweden in more recent years (Folkhälsomyndigheten, 2017). Additionally, there is evidence that the incidence of ADHD (Attention Deficit Hyperactivity Disorder) diagnosis has increased in recent years in Sweden (Giacobini, Medin, Ahnemark, Russo, & Carlqvist, 2014).

Self-reported anxiety and use of mental health services have increased among both boys and girls, and suicide attempts increased among girls in the decades following the 1990s in Stockholm County (Kosidou et al., 2010). There is additional evidence that mental health problems have particularly increased among girls both in Sweden (Folkhälsomyndigheten, 2014b; The Royal Swedish Academy of Sciences, 2010) and in other contexts (Bor et al., 2014; West & Sweeting, 2003). The gender difference in mental health tends to increase with age during adolescence (Folkhälsomyndigheten, 2014b), with one meta-analysis evaluating over 300 samples indicating that girls tend to experience a steady increase in depressive symptoms between the ages of 11 and 16 and surpass their male counterparts at the age of 13 (Twenge & Nolen-Hoeksema, 2002).

The reason for the increase in youth mental health problems remains unknown, but some have speculated that it may be related to pressure and worrying about securing good prospects in the current educational and labor market environment (West & Sweeting, 2003).

## **2.3 CHANGES IN THE LABOR MARKET AND HIGHER EDUCATION**

Young people are disproportionately affected by unemployment in all regions of the world (International Labour Organization, 2015). Many medium-skilled occupations have vanished, and there is a larger gap between lower and higher skilled professions (International Labour Organization, 2015). Employment is generally becoming more precarious compared to previous decades, leaving employees in a more vulnerable position (Kalleberg, 2011). Inequalities are also growing in many high-income countries (International Labour Organization, 2015). In Sweden, the situation looks quite similar, where a decrease in medium and low skilled jobs have disproportionately affected youth over the last decades (Lundahl & Olofsson, 2014). Higher education is considered to be one of the best ways to secure labor market positions and other life circumstances (Socialstyrelsen, 2010), and beyond this, many young people simply stay in education longer than they may have planned in order to avoid unemployment (Lager & Bremberg, 2009).

These labor market patterns appear to have a negative relationship with mental health. On an ecological level, mental health problems tend to increase during economic downturn (World Health Organization, 2007), and at the individual level, unemployment has been found to be associated with worse mental health (Korpi, 1997). One study found that the prevalence of young people outside the labor market was associated with an increase in mental health problems in 10 high-income countries including Sweden (Lager & Bremberg, 2009). Less is known about how young people actually view their future prospects both in terms of what factors influence their future plans, and how this may affect their mental health, though it has been hypothesized that increasing educational demands are related to increasing mental health problems (Folkhälsomyndigheten, 2014b).

## **2.4 THE SWEDISH EDUCATIONAL CONTEXT**

The Swedish education system underwent a rapid transition beginning in the 1990s with many effects still present today. First and foremost, the school system was decentralized when responsibility was transferred from the national level to the municipal level (Wikström, 2006). This, combined with several other policy changes, made the emergence of publicly funded but privately-run, schools known as “free schools” possible (Wiborg, 2015). These schools are not allowed to charge tuition but receive public funds and are allowed to operate as for-profit organizations (Fredriksson, 2009). Additionally, voucher systems were introduced to allow students to have free choice of which school to attend rather than attending the school with the closest proximity to where they live. While some have argued that this is a more equal system, it has been criticized for actually creating more inequalities between schools (Berhanu, 2010).

Apart from these larger overall structural changes, schools have also shifted to a student-centered approach to learning where teachers are seen as facilitators rather than leaders, and students are expected to be responsible for their own learning process (Kornhall, 2013). Other policies have required students to receive grades at a younger age than previously (beginning in 6<sup>th</sup> grade) and require teachers to have a master’s degree in order to teach upper-secondary school (Flores & Niklasson, 2014).

The full impact of some of these changes in Sweden is not yet completely understood. However, no country saw a more rapid decline in PISA scores between 2000 and 2012 than Sweden (OECD, 2015), which has only recently improved slightly (OECD, 2016). The changes in the educational system have coincided with the aforementioned decline in youth mental health. Though the two are not necessarily directly related, some of these changes in education may affect how young people see their own education and future planning and may in turn influence their mental health.

In Sweden, school attendance is compulsory from the age of six to 16 years. After compulsory school, adolescents decide whether they want to continue to upper-secondary school, and if so, whether they will follow an academic or a vocational track (OECD, 2015). Though upper-secondary school is not mandatory, around 98% of those who were born

between 1991 and 1995 continued to upper-secondary school within a year after compulsory school (SCB statistics Sweden, 2017), and nearly 90% of adults had attained an upper-secondary degree in 2013 (OECD, 2015). An estimate from 2012 reported that around 75% complete upper-secondary school on their first try (OECD, 2012). Further, around 40% of the adult population has at least two years of university education, and women outnumber men in university education (Swedish Higher Education Authority, 2018).

## **2.5 ACADEMIC EXPECTATIONS AND ASPIRATIONS**

Academic expectations refer to how far a person believes that he or she will go in school, while aspirations refer to how far the person wants to go in school. Aspirations have been found to be somewhat stable over time despite surrounding circumstances, while expectations are more likely to change based on ability and socioeconomic status (Elliott, 2009). These two concepts are sometimes differentiated and sometimes used interchangeably. Throughout this thesis, the terms expectations and aspirations are used when specifically referring to one construct or the other, and the term future academic prospects is used when referring to a more general concept encompassing both expectations and aspirations.

Several studies have found that discrepancies between aspirations and expectations are associated with mental health problems. Specifically, it appears to be detrimental when adolescents aim higher than what they believe that they can achieve (Boxer, Goldstein, DeLorenzo, Savoy, & Mercado, 2011; Greenaway, Frye, & Cruwys, 2015; Kiang, Witkow, Gonzalez, Stein, & Andrews, 2015). All of these studies, however, were conducted in the United States or Australia, and the gap between academic aspirations and expectations is likely to be closely related to socioeconomic status. The relationship between aspirations and expectations may appear differently in different contexts where expectations of university are less dependent on the monetary ability to pay for tuition or where higher education is otherwise more accessible. Thus, in a more egalitarian context it may be possible to break some of the confounding by socioeconomic status in the relationship between future academic prospects and mental health.

Adolescent future academic prospects can be seen not only as a proxy for family's socioeconomic status, but possibly as a proxy for the adolescents' future socioeconomic status (Hagquist, 2007). Future academic prospects among young people may represent an intended social mobility. Thus, it is possible to look at adolescents' future prospects as both a product of their family situation, but also as catalysts for their own future positions. The importance of adolescents' own social position and resources *independent* of their parents' socioeconomic status has previously been discussed (Plenty & Mood, 2016), and future academic prospects may be an important aspect of adolescents' own socioeconomic status.

## **2.6 FUTURE ACADEMIC PROSPECTS AND MENTAL HEALTH**

The relationship between different academic experiences and mental health is somewhat complicated. Several studies have concluded that the increase in youth mental health problems may be related to an increase in academic demand and pressure to succeed

(Folkhälsomyndigheten, 2014b; Plenty, Östberg, Almquist, Augustine, & Modin, 2014; West & Sweeting, 2003). This has especially been discussed regarding girls, where mental health appears to have deteriorated and expectations increased more rapidly than for their male counterparts (West & Sweeting, 2003). Girls have also been found to perceive higher academic demands (Giota & Gustafsson, 2017), feel that they have more responsibility for their own academic achievement (Landstedt, Asplund, & Gillander Gadin, 2009), and experience more academic stress than boys (Låftman, Almquist, & Östberg, 2013). This has been discussed as a factor contributing to the gender gap in adolescent mental health (Giota & Gustafsson, 2017). Some studies have reported adverse outcomes associated with academic stress such as depression (Barker, Howard, Villemare-Krajden, & Galambos, 2018; Jayanthi, Thirunavukarasu, & Rajkumar, 2015), or even suicidal ideation and behavior (Ang & Huan, 2006; Juon, Nam, & Ensminger, 1994).

At the same time, low academic achievement has been found to be related to negative internalizing and externalizing mental health outcomes both in the short term (Albeg & Castro-Olivo, 2014; De Luca, Franklin, Yueqi, Johnson, & Brownson, 2016; Loe & Feldman, 2007) and throughout the life course (Kosidou et al., 2014). Academic engagement (Cadime et al., 2016; Leonard, Stiles, & Gudiño, 2016; Lewis, Huebner, Malone, & Valois, 2011) as well as other processes which may be related to educational future planning such as intrinsic motivation and goal setting also tend to be related to better well-being and more positive mental health (Auerbach et al., 2011; Bailey & Phillips, 2016; Heckhausen et al., 2013; Macleod, 2017).

There may be additional cultural differences in terms of how these concepts are experienced and how they relate to each other. Academic stress, for example, is a relative and subjective experience and can have very different meanings in different contexts depending on individual and cultural factors and how the broader educational system functions. In general, educational achievement and engagement seem to positively relate to youth mental health, while academic stress and pressure appear to have the opposite effect. It is not entirely clear how future academic prospects fit into these associations. There is a well-established relationship between high expectations – both parental and own – and high achievement (Areepattamannil & Lee, 2014; Bodovski, 2014; Froiland, 2011; Phillipson, 2009; Rothon, Arephin, Klineberg, Cattell, & Stansfeld, 2011; Suárez-Álvarez, Fernández-Alonso, & Muñiz, 2014), but high expectations from internal and external sources could potentially be a source of either stress or motivation.

### **2.6.1 Own future academic prospects**

Higher own future academic prospects have been found to be negatively associated with both internalizing and externalizing mental health problems in some studies. For example, higher educational aspirations are associated with more positive psychological well-being (Davids, Roman, & Kerchhoff, 2016; Heckhausen et al., 2013), and getting more sleep (Norell-Clarke & Hagquist, 2017). One study found that educational expectations mediated the relationship between mental health and academic achievement (McLeod & Fettes, 2007). In several

studies, higher academic aspirations have also been found to be inversely related to detrimental behaviors such as violent behavior (Bernat, Oakes, Pettingell, & Resnick, 2012; Dubow, Huesmann, Boxer, & Smith, 2016; Stoddard, Heinze, Choe, & Zimmerman, 2015), as well as smoking initiation (Carvajal, Hanson, Downing, Coyle, & Pederson, 2004) and delinquency (DiPierro, Fite, Cooley, & Poquiz, 2016). It has even been found that high academic expectations are associated with a variety of health promoting behaviors (McDade et al., 2011; Whitehead, Currie, Inchley, & Currie, 2015). Some studies, however, reported mixed findings. One study found that higher academic expectations were associated with better self-esteem and lower depression, but higher aspirations were associated with lower well-being (Kiang et al., 2015). Another found that higher aspirations were related to fewer depressive symptoms among Black and White youth but found the opposite association among Latinx youth (Turcios-Cotto & Milan, 2013).

Several studies have indicated the benefits of high career aspirations such as lower substance use (Dudovitz, Chung, Nelson, & Wong, 2017), and fewer emotional and behavioral problems among children (Flouri, Midouhas, Joshi, & Sullivan, 2016; Moulton, Flouri, Joshi, & Sullivan, 2015). Though career and future academic prospects may not coincide, the two concepts are closely related as career attainment often depends on level of education.

## **2.6.2 Parental expectations and aspirations for their children**

Findings relating parental expectations for their children and their children's mental health are somewhat conflicting. Some studies have found that parental prospects of high achievement are related to positive adolescent outcomes. For example, one study found that higher parental aspirations for their children predicted fewer depressive symptoms (Gerard & Booth, 2015), and another found that lower parental expectations were associated with poorer child self-concept (McCoy, Maitre, Watson, & Banks, 2016). One recent study found that higher parental educational expectations for their adolescent children were associated with their children's life satisfaction two decades later, though this path was completely mediated by children's own expectations and self-esteem (Jung, Hwang, Zhang, & Zhang, 2018). Other studies have suggested that parental expectations and aspirations are related to psychological distress in the children (Costigan, Hua, & Su, 2010; Kanter Agliata & Renk, 2008).

It has also been hypothesized that high parental expectations are especially problematic when children perceive that they do not live up to their parents' high standards (Oishi & Sullivan, 2005; Wang & Heppner, 2002). The way expectations are communicated may be more important than the expectations themselves, as was described in a previous qualitative study where high parental demands were not seen as a problem when the parents and children engaged in respectful and reciprocal communication (Qin, 2008). It has also been found that the relationship between parental pressure and child depression and anxiety depends on the quality of the parent-child relationship to some extent (Quach, Epstein, Riley, Falconier, & Fang, 2015). Some studies have pointed to a polarity in parents' expectations and criticism. One study, for example, found that parental expectations were associated with adaptive perfectionism and academic achievement, while parental criticism was associated with



maladaptive perfectionism and poor mental health (Harvey, Moore, & Koestner, 2017), where adaptive perfectionism refers to having high standards for oneself, and maladaptive perfectionism refers to never feeling good enough.

Another dimension of parental expectations or aspirations in relation to youth mental health is that parents and children may not always agree on what constitutes realistic or attractive academic goals. Only three known studies have considered the misalignment of parent and child future academic prospects, and all found that discordance of academic expectations or aspirations was related to more internalizing problems or worse well-being among the adolescent children (Gallagher, 2015; Hausmann-Stabile, Gulbas, & Zayas, 2013; Rutherford, 2015).

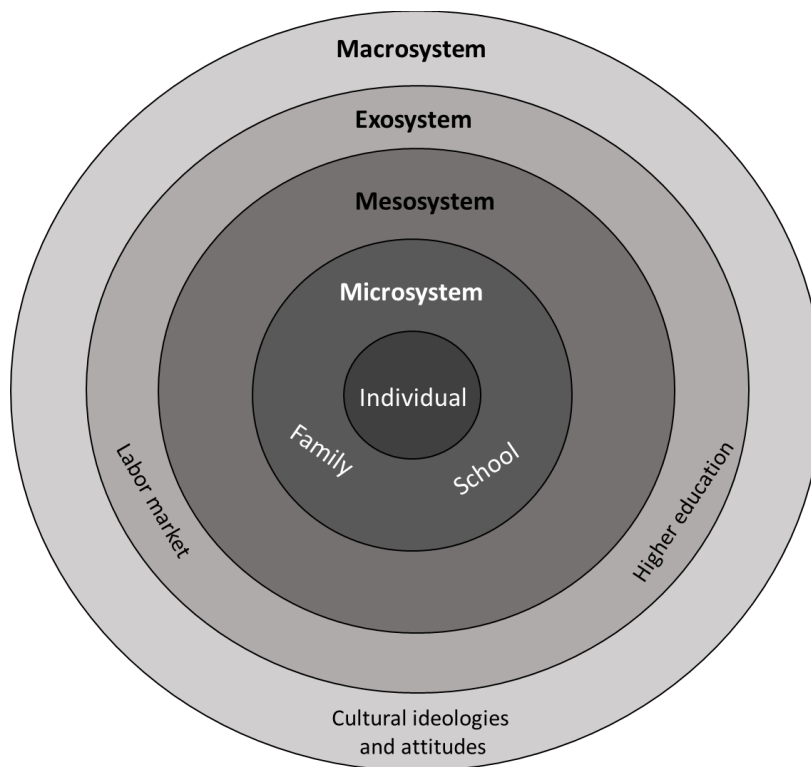
Though there is somewhat conflicting evidence, it seems that processes related to parental expectations or aspirations could affect adolescents in different ways. On one hand, parental expectations or aspirations may influence child mental health in opposite directions (i.e., too high expectations may lead to distress, and too low expectations could potentially lead to lower self-worth). It is possible that there are alternative pathways which depend on whether or not the child shares the same expectations as his or her parents, and other dimensions of the parent and child relationship.

## **2.7 CONTEXTUAL AND INDIVIDUAL PREDICTORS OF FUTURE ACADEMIC PROSPECTS**

Future academic prospects develop within a context and are likely to be influenced by a variety of people and factors outside the individual adolescent. Every person is influenced by outside forces, and it is essential to better understand the factors and processes which influence the development of future academic prospects. The framework of Ecological Systems Theory (Bronfenbrenner, 1979) can be applied to help understand the outside factors and systems which influence an individual. Within this framework, a developing individual lies at the center of several systems nested within each other which affect the person both directly and indirectly: microsystems refer to specific contexts that an individual directly interacts with such as schools, family, peers, and neighborhood; while mesosystems refer to the interactions between these microsystems; exosystems refer to factors which may affect an individual indirectly through their micro and mesosystems; and macrosystems refer to broader cultural factors (Bronfenbrenner & Morris, 2006). Figure 1 shows an illustration of Bronfenbrenner's theoretical framework. The previously mentioned labor market and educational changes and their interaction represent the more distal systems, and the school and family represent examples of proximal microsystems.

In this thesis, the focus of factors which influence the development of future academic prospects is on the microsystem level. While it is important to understand these outer systems and their relationship to the development of the adolescent's future academic prospects, the microsystems – specifically family and school – are likely to be more modifiable than the exo- and macrosystems. Thus, it may be possible for an individual's positive interactions with

the school and family microsystems to buffer against some of the changes happening at the exosystem and macrosystem level.



**Figure 1** depicts an adaptation of Bronfenbrenner's Ecological Systems Theory.

*Adapted from an image from Wikimedia Common licensed under creative commons GNU free documentation license. The theoretical model originated from Bronfenbrenner, U. (1979). The ecology of human development. Cambridge, MA: Harvard University Press.*

In order to understand individual future academic prospects, it is important to understand motivation, and specifically which factors motivate an individual to set educational goals. This can be conceptualized within the framework of Self-Determination Theory which is a theory of human motivation that describes how intrinsic and extrinsic factors facilitate individual motivation (Deci & Ryan, 1985). Within this framework, there are three psychological needs which need to be satisfied for optimal growth and development; competence, relatedness, and autonomy. Competence describes a feeling of control and mastery, relatedness describes feelings of connection to others, and autonomy refers to feeling in control of one's life, though this does not necessarily imply complete independence (Deci & Ryan, 1985). It is thus important for the family and school environments to support these psychological needs. Intrinsically motivated behaviors are self-determined, meaning that people perform these behaviors for their own satisfaction (Deci & Ryan, 1985). However, external demands can be internalized as part of an integrative process and can result in autonomous motivation and functioning (Ryan, 1995). In line with this framework, external expectations such as those of parents and teachers may be internalized and result in higher individual expectations. This further drives the hypothesis that adolescents' motivation

and goals are influenced by factors closely related to them such as family and school environments.

### **2.7.1 School factors**

School is a particularly important context for the development of adolescent future academic prospects. Specifically, teachers' expectations have been found to consistently influence adolescents' achievement in school (Benner & Mistry, 2007; Gregory & Huang, 2013; Wentzel, Russell, & Baker, 2016). This is a phenomenon known as the Pygmalion effect, where teachers' academic expectations predict children's achievement regardless of the children's actual ability (Rosenthal & Jacobson, 1968).

Apart from specific teachers' expectations, the overall school climate has been found to be an important factor positively affecting adolescents' future academic prospects in some studies (Israelashvili, 1997; Madarasova Geckova, Tavel, van Dijk, Abel, & Reijneveld, 2010; Marjoribanks, 2002), though one study found an inverse association among Roma youth in Bulgaria (Dimitrova, Ferrer-Wreder, & Ahlen, 2018). Other studies have also pointed to associations between a positive school climate and better student engagement (Bear et al., 2018; Konold & Cornell, 2015; Konold & Shukla, 2017).

It should be underlined that measures of school climate vary extensively between studies, even if they often refer to issues like safety, resources, relationships, and teaching practices. Some studies have also focused on specific dimensions of school climate such as perceived support from teaching staff (Melkman, Refaeli, & Benbenishty, 2016; Smith, Mann, Georgieva, Curtis, & Schimmel, 2016) and positive student-teacher relationships (Wong, Parent, & Konishi, 2019) and have found this to be positively associated with higher future academic prospects. It has also been found that, at the school level, both high student support and high disciplinary expectations are associated with higher aspirations (Cornell, Shukla, & Konold, 2016). In line with Self-Determination Theory, teacher support and positive student-teacher relationships may support the psychological need for connectedness, while exposure to optimal external expectations may contribute to feelings of competence (Larson & Rusk, 2011). Thus, expectations and support may be important aspects of the school climate in providing a healthy environment and supporting the development of adolescent future academic prospects.

### **2.7.2 Family factors**

The family is another clearly important context for influencing the development of future academic prospects. Several studies have found that parents' high expectations or aspirations for their children predict their children's own high future academic prospects (Agger, Meece, & Byun, 2018; Gutman, Schoon & Sabates, 2012; Kremer, Huang, Vaughn, & Maynard, 2019; Rimkute et al., 2012; Roth, 2017; Rutchick, Smyth, Lopoo, & Dusek, 2009; Tynkkynen, Tolvanen, & Salmela-Aro, 2012; Wu, Hou, Wang, & Yu, 2018). However, parental engagement in their child's education is less clearly understood. While one study determined this to be one of the most important predictors of adolescent future academic

prospects (Rutchick et al., 2009), another reported null findings (Iovu, 2015). Moreover, parental engagement in their child's education may be motivated by different reasons. Some parents may become more engaged in their child's education when the child is already struggling in school.

### **2.7.3 Individual factors**

Most previous studies concerning the antecedents of future academic prospects have focused on non-modifiable background characteristics (Chykina, Chung, & Bodovski, 2016; Irvin, Byun, Meece, Reed, & Farmer, 2016; Kirk, Lewis, Brown, Nilsen, & Colvin, 2012). There may be other modifiable individual factors or processes which may be closely related to the development of adolescent future academic prospects. Expectancy-Value theory describes the importance of the combination of ability self-concept and value put on certain tasks in predicting motivation and achievement (Wigfield & Eccles, 2000). Thus, previous academic achievement may be an important aspect of adolescents' ability self-concept, and academic engagement may be closely related to the value put on education and learning. These two constructs are therefore likely to play an important role in predicting adolescents' future academic prospects.

The relationship between academic achievement and future academic prospects has been hypothesized in both directions. Some studies have found that adolescents adjust their future prospects according to their own achievement and ability (Gutman et al., 2012; Rimkute et al., 2012), but others have determined that adolescents' expectations are quite consistent regardless of their actual achievement (Andrew & Hauser, 2011; Trusty, 2000).

Engagement in school is seen to be closely related to future academic prospects and sometimes even indistinguishable in the way that it is measured (Heckhausen et al., 2013). Not surprisingly, student engagement has been found to be an important aspect related to future academic prospects in both qualitative (Thiele, Pope, Singleton, Snape, & Stanistreet, 2017) and quantitative studies (Gutman & Schoon, 2018; Walkey, McClure, Meyer, & Weir, 2013).

Sense of identity has also been described as being important for the development of future educational and vocational goals (Marttinen, Dietrich, & Salmela-Aro, 2018; McDonald, Pini, Bailey, & Price, 2011). Identity development is seen as the key developmental task during adolescence according to Erikson's Psychological Stage Theory. During this stage adolescents attempt to resolve the crisis of who they are and where they are heading in life (Rosenthal, Gurney, & Moore, 1981). The formation of identity synthesis is usually preceded by a long period of exploration and confusion (Erikson, 1968). Decisions about education and vocational choices are expected to take place during middle adolescence (Rimkute et al., 2012), while identity formation is speculated to take place throughout adolescence and young adulthood (Erikson, 1968). It is unclear exactly how the two develop in relation to one another. Though identity formation is an individual process, interventions have previously been successful in reducing identity distress (Meca et al., 2014).

### **3 AIM**

In light of the rising mental health problems in Sweden, and in the context of the current challenges of the school system and labor market, the overarching aim of this thesis is to explore the relationship between future academic prospects and mental health among adolescents and to better understand the contextual and individual factors which influence the formation of adolescents' future academic prospects.

#### **3.1 RESEARCH QUESTIONS**

- I. Are individual academic expectations and aspirations associated with adolescents' mental health one year later, and does this differ by gender? (Study I)
- II. Are parents' academic expectations for their children and the agreement of parent and child academic expectations related to the adolescents' mental health? (Study II)
- III. Does the school pedagogical and social climate predict adolescents' academic aspirations? (Study III)
- IV. Which individual and family factors predict positive changes in adolescent academic expectations? (Study IV)

## 4 METHODS

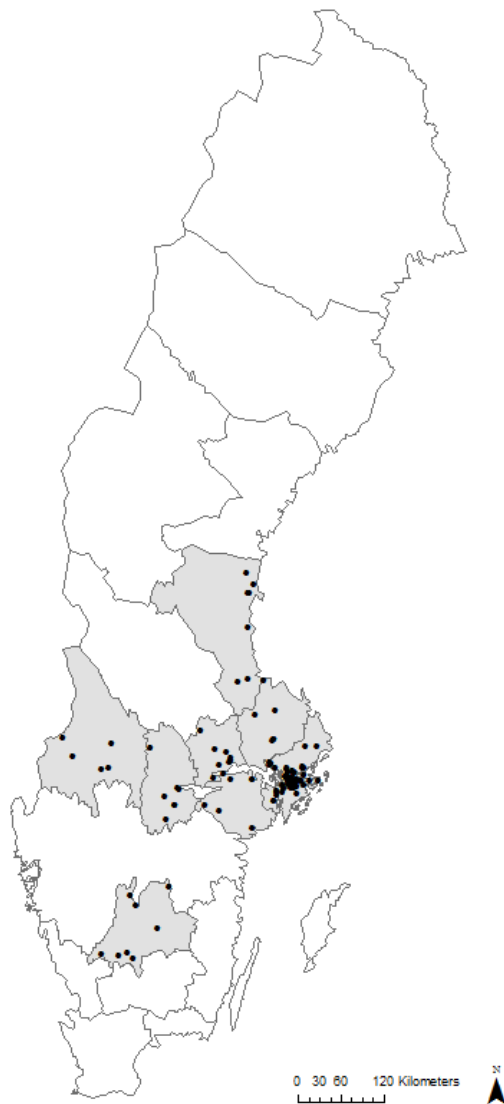
### 4.1 THE KUPOL STUDY

The four studies included in this thesis are based on data from the KUPOL longitudinal study, which is a large-scale cohort study focusing on educational and school factors in relation to youth mental health.

#### 4.1.1 Data collection and design

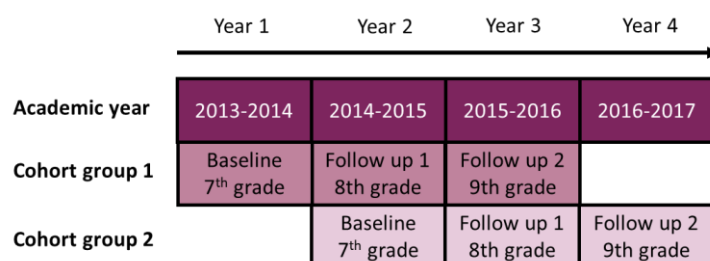
Five hundred and forty-one schools in the regions of Gävleborg, Jönköping, Stockholm, Södermanland, Uppsala, Värmland, Västmanland, and Örebro in central and southern Sweden were originally contacted for participation in the KUPOL study. Six of these schools were deemed ineligible because they had less than 20 students in the 7<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup> grade. Of the 535 eligible schools, 101 agreed to participate in the study (19%). Figure 2 shows a map of Sweden with the participating schools. Data were then collected from students in two subsequent birth cohorts: the first one was attending 7<sup>th</sup> grade (age 13) during the 2013-2014 academic year, while the second one attended the 7<sup>th</sup> grade during the 2014-2015 academic year (Figure 3). In line with ethical obligations for research involving minors, the parents of 12,512 students were contacted, of which 3,959 gave informed consent for their child's participation in the study (32% participation rate). Figure 4 shows the flow of recruitment and participation. Adolescents recruited in the study answered a baseline questionnaire containing a variety of questions related to different aspects of their health and lives. Follow-up surveys were conducted during the 8<sup>th</sup> and 9<sup>th</sup> grade, and in the first year following the completion of compulsory school (9<sup>th</sup> grade). Parents also answered similar questionnaires annually where the questionnaire was answered by the mother around 81% of time, by the father around 19% of the time, and less than 1% were answered by another parent or guardian. The studies included in this thesis use data from the 7<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup> grade questionnaires.

Data were also collected at the school level, where teachers and 9<sup>th</sup> grade students answered anonymous questionnaires evaluating the school environment. The 9<sup>th</sup> grade students answering these questionnaires did not encompass the cohort participants apart from the last year. In other words, the second follow-up, when the students in the cohort were in the 9<sup>th</sup> grade was the only opportunity where the students in the cohort could also answer the question on school climate, but even in this case, these questionnaires were only connected to the index adolescent as a school average and not on the individual level. These questionnaires were answered by 4,542 teachers and 11,282 students during the years corresponding to the first wave of data collection.



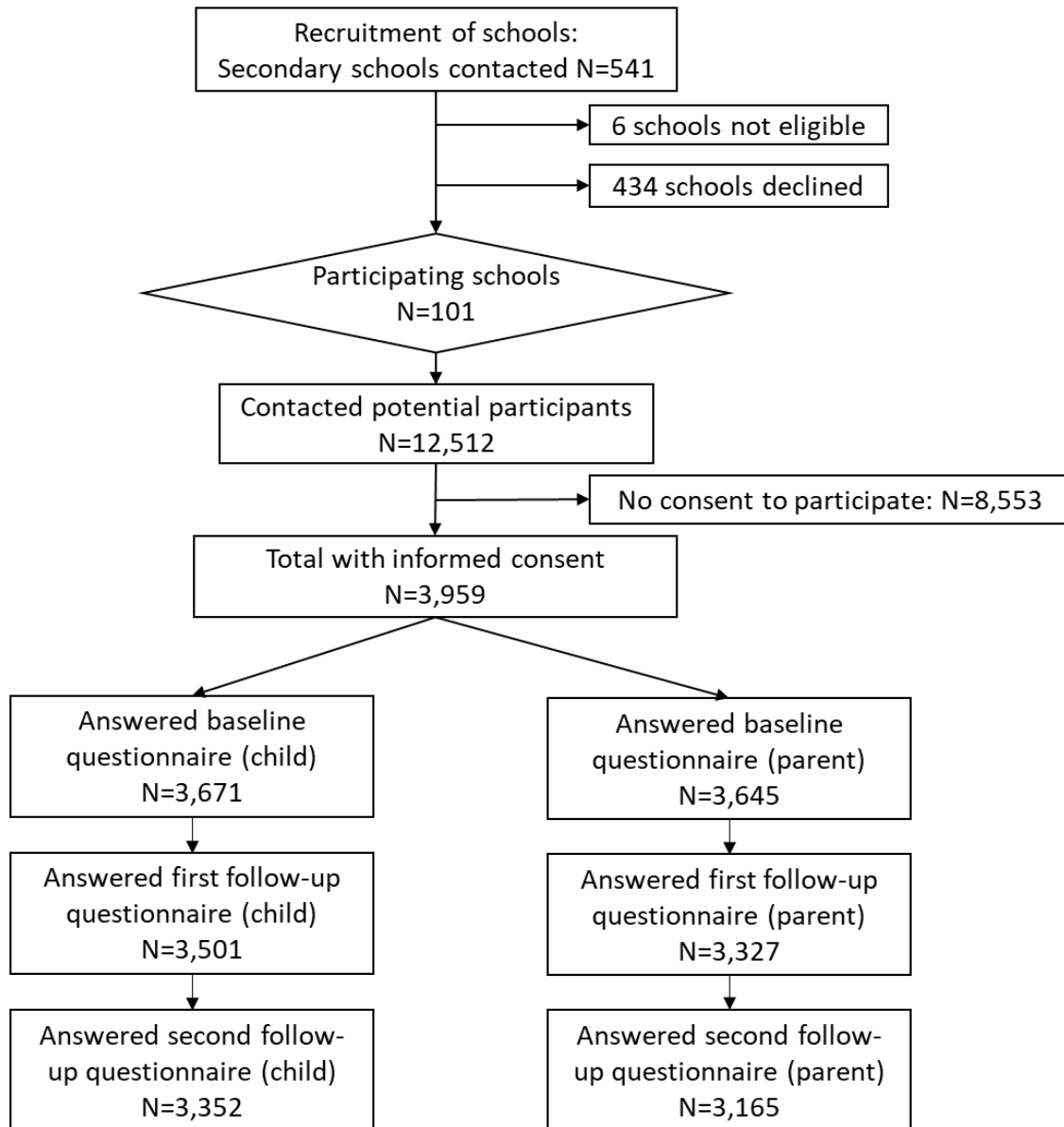
**Figure 2** Map of Sweden showing the participating schools in the KUPOL study

*Originally printed in Galanti, et al. (2016). School environment and mental health in early adolescence - a longitudinal study in Sweden (KUPOL). BMC Psychiatry, 16(1), 243. Licensed under creative commons <https://creativecommons.org/licenses/by/4.0/>*



**Figure 3** Timeline of data collection used for the studies in this thesis

*Adapted from figure 3 in Galanti, et al. (2016). School environment and mental health in early adolescence - a longitudinal study in Sweden (KUPOL). BMC Psychiatry, 16(1), 243. Licensed under creative commons <https://creativecommons.org/licenses/by/4.0/>*



**Figure 4** Flow chart of participants in the KUPOL study

*Partially adapted from figure 2 in Galanti, et al. (2016). School environment and mental health in early adolescence - a longitudinal study in Sweden (KUPOL). BMC Psychiatry, 16(1), 243. Licensed under creative commons <https://creativecommons.org/licenses/by/4.0/>*



#### 4.1.2 Study population

The studies included in this thesis used slightly different study populations, reported in Table 1 below.

**Table 1** Populations used for each study

Study	Information/data required	Size of Population
Study I	Adolescents who answered the baseline (7 <sup>th</sup> grade) and first follow-up questionnaires (8 <sup>th</sup> grade)	3,343
Study II	Dyads of adolescents and their parents who answered either the first (8 <sup>th</sup> ) or second follow-up (9 <sup>th</sup> ) questionnaire (baseline data was adjusted for)	3,424
Study III	Adolescents who answered the baseline (7 <sup>th</sup> grade), or the first follow-up (8 <sup>th</sup> grade), or the second follow-up (9 <sup>th</sup> grade) questionnaires where school-level information was also reported	3,791
Study IV	Adolescents who answered the baseline (7 <sup>th</sup> grade) and second follow-up (9 <sup>th</sup> grade) questionnaires who indicated having undefined or lower than university expectations at baseline	2,187

#### 4.1.3 Ethical considerations

Extensive information about the KUPOL study including aims, data collection procedures, and intended use of the data was sent home to the parents. The information was translated into 10 different languages and was available upon request. Parents were given the opportunity to give informed consent for their child's participation in each aspect of data collection separately (questionnaires, register record linkage, and saliva samples for a nested sample). Students received similar information at school when they answered the questionnaires. They were given the right to withdraw from the study at any point and were not required to complete the questionnaire if they did not want to. School nurses or other school health staff were contacted if students reported a score above a standard threshold for the scales measuring the adolescent's self-reported mental health. Because these students were considered as having probable mental health problems, the school health staff were able to assess the next necessary steps, for example surveillance or referral to health care professionals. This information was communicated to the students before they completed the questionnaires.

Digital data are stored on a secure server, and paper questionnaires are physically locked up until they are archived. The database is de-identified and encrypted.

The KUPOL study was approved by the Stockholm Ethics Review Board (reference number: 2012/1904-31/1 and 2016/1280-32).

## 4.2 STUDY VARIABLES

Table 2 summarizes the main predictors and outcomes for each study. All variables are described in detail below.

**Table 2** Summary of main predictors and outcomes in the four studies

Study	Main predictors	Outcomes
Study I	Adolescent own future aspirations and goals (FG), academic expectations, academic aspirations	Adolescents' self-reported depressive symptoms (CES-DC), total difficulties, internalizing and externalizing problems (SDQ)
Study II	Parental academic expectations, agreement of parent and child expectations, parental academic aspirations, agreement of parent and child aspirations	Adolescents' self-reported internalizing and externalizing problems (SDQ)
Study III	School climate, school-level academic and disciplinary expectations, school-level teacher support reported by students and teachers (PESOC)	Adolescents' academic aspirations and future goals (FG)
Study IV	Parental engagement with school, parental expectations, student engagement, academic achievement, identity synthesis, and mental health	Positive shift in academic expectations between 7 <sup>th</sup> and 9 <sup>th</sup> grade

*FG, Future aspirations and Goals scale; CES-DC, Center for Epidemiological Studies Depression scale for Children; SDQ, Strengths and Difficulties Questionnaire; PESOC, Pedagogical and Social Climate instrument.*

### 4.2.1 Future academic prospects

In each annual survey, adolescents were asked how far they wanted to go in their education (aspirations), and how far they thought that they would go in their education (expectations). These questions were adapted from the 4H Positive Youth Development study (Lerner et al., 2005) and adapted to a Swedish context. The response alternatives were “I don’t know”,

“upper-secondary school – vocational track”, “upper-secondary school– theoretical track”, and “university”. Parents of the adolescents were asked the same questions rephrased to indicate their expectations and aspirations for their children.

These variables were used in all four studies but were categorized in slightly different ways. In study I, the two upper-secondary school tracks (vocational and theoretical) were combined into one category due to the relatively few individuals in these categories. In study II parental expectations were considered both in their original categories, and as a simplified dichotomous variable indicating university or not. The concordance of parent and child expectations and aspirations was also derived using this dichotomized measure, creating 4 mutually exclusive categories: university expectations in both parent and child (high parent/high child), university expectations in parents but not children (high parent/low child), expectations below university according to the child but not the parent (low parent/high child), and both parent and child with expectations below university. The same categories were formed concerning aspirations. In the third study, aspirations were again, dichotomized to indicate aspirations above or below university level. In Study IV, positive change in expectations between 7<sup>th</sup> and 9<sup>th</sup> grade were derived in two ways. Those who were uncertain about their expectations at baseline who resolved this uncertainty in the 9<sup>th</sup> grade were compared to those who remained uncertain. Additionally, those with definitive expectations below university level at baseline who shifted their expectations upwards in the 9<sup>th</sup> grade were compared to those who did not shift their expectations upwards.

Adolescents’ educational aspirations were also measured using the Future aspirations and Goals (FG) subscale of the well validated Student Engagement Instrument (SEI) (Appleton, Christenson, Dongjin, & Reschly, 2006; Betts, 2002). This subscale indicates how much individuals agree or disagree with five statements indicating how important education is to them, whether they plan to continue their education after upper-secondary school, and hopefulness about the future. The score of this scale was calculated as a mean, as recommended by the Check and Connect Study scoring instructions (Check and Connect Study, 2015), with a range from one to five and a higher score indicating higher aspirations. The Cronbach’s Alpha for this scale was .79 at baseline. This scale was used as a continuous predictor and categorized into tertiles in study I. In study II, the scale was dichotomized at the median (4.6).

Two items from the FG scale were also used as a proxy for student engagement. These items were selected because they referred more generally to the value that adolescents put on their education and do not indicate direct future planning. These items were “school is important for achieving my future goals” and “my education will create many future opportunities for me”. Five response alternatives were possible (ranging from “strongly disagree” to “strongly agree”). These categories were dichotomized as two categories: agree (comprised of agree or strongly agree) and disagree (comprised of neither agree nor disagree, disagree, and strongly disagree).

#### 4.2.2 Mental health

Adolescent mental health was measured through two validated self-report instruments.

The Center for Epidemiological Studies Depression Scale for Children (CES-DC) measures depressive symptoms in children and adolescents, using 20 questions referring to the past week. The response alternatives are “not at all”, “a little”, “some”, and “a lot” (Fendrich, 1990). The answers to these questions are scored as a cumulative score. The higher the score, the more depressive symptoms. Because the scores were not normally distributed, we used the recommended cut-off point for adolescents in Sweden of 30 points out of a total of 60 possible points (Olsson & von Knorring, 1997). This cutoff of 30 is slightly higher in adolescents than in younger children because adolescents experience more variability in their emotional symptoms. The scale has been validated internationally and shows acceptable psychometric properties. The Cronbach’s Alpha in the present population was .90 at baseline. The dichotomized version of this scale was used in study I and IV.

In addition to the CES-DC, the child-reported Strengths and Difficulties Questionnaire (SDQ) which measures multiple dimensions of mental health problems was used. This instrument has shown good psychometric properties both in Sweden (Svedin & Priebe, 2008) and elsewhere (Goodman, 2001). It includes 25 questions in which the participant indicates how much they agree with a statement using three response alternatives. The instrument is comprised of five subscales: “prosocial behavior”, “emotional problems”, “peer problems”, “hyperactivity”, and “conduct problems”. It has been suggested that the emotional and peer problems subscales can be combined into an “internalizing problems” subscale and the hyperactivity and conduct problems subscales can be combined into an “externalizing problems” subscale when working with community rather than clinical populations (Goodman, Lamping, & Ploubidis, 2010). Together, these subscales make up the “total difficulties scale”. The distribution of these scores were also not normal, and recommended cutoff points were used (Goodman et al., 2010). These cutoff points are 18 for the total difficulties scale, 9 for the internalizing problems subscale and 11 for the externalizing problems subscale. The Cronbach alphas for these scales at baseline were .78 for the total difficulties scale, and .71 and .74 for the internalizing and externalizing scores respectively. Study I used all three subscales, study II used only the internalizing and externalizing subscales, and study IV used the total difficulties scale.

These two instruments were chosen to measure mental health in order to increase the validity of measuring internalizing symptoms. The SDQ can be completed quickly and measures multiple dimensions of mental health (Goodman, Ford, Simmons, Gatward, Meltzer, 2000), while the CES-DC asks a larger amount of more detailed questions related to depressive symptoms. In study III psychiatric diagnoses obtained from the child and youth outpatient register (BUP) were also used.

### **4.2.3 School climate variables**

The anonymous questionnaires given to teachers and 9<sup>th</sup> grade students contained the Pedagogical and Social Climate instrument (PESOC). This instrument was developed by Lennart Grosin (Grosin, 2004) to measure multiple domains of the school climate from the teacher and student perspective with theory rooted in school effectiveness research (Grosin, 2004). The instrument was designed specifically with the Swedish educational context in mind, and has shown acceptable validity and reliability (Hultin, Ferrer-Wreder, Dimitrova, Karlberg & Galanti, 2016; Hultin et al., 2018) The original teacher version had 95 items, but internal consistency analysis indicated a better fit with 67 items comprising 11 subscales (Hultin et al., 2016). The student version of the PESOC instrument has 8 subscales and 53 items. Each item is given as a statement, where the participant indicates how much they agree or disagree on a four-point scale. A fifth option of “I don’t know” was eventually coded as missing. The total school climate rating was scored as a mean of all items for students and teachers separately, as well as the expectations and student focus subscales for the teacher version and the expectations and teacher support subscales from the student version. A higher score indicates a more positive school climate (total or domain specific). The teacher-rated expectations scale contains four items which indicate the school’s academic and behavioral expectations, while the student version contains similar items with slightly different wording. The teacher-rated student focus subscale measures positive relationships between teachers and students, and the teacher support subscale of the student-rated instrument measures similar qualities from the students’ perspective. During the first wave of data collection, the Cronbach’s alphas for the total PESOC score were .96 for both the teacher and the student version. For the teacher-rated expectations subscale and student focus subscale, the Cronbach’s alphas were .64 and .68 respectively, and for the student-rated expectations and teacher support subscales the Cronbach’s alphas were .59 and .77.

### **4.2.4 Other covariates**

Parental engagement with their adolescent child’s schooling was measured using the adolescent-reported Family Support for Learning scale (FSL) of the SEI. This scale indicates how much the adolescent agrees with statements about their parents’ communication and engagement with his or her schooling and schoolwork. The five response alternatives range from “strongly disagree” to “strongly agree”, where the scale is scored as a mean of the 4 items and a higher score indicates more parental engagement in the child’s learning. The Cronbach’s alpha at baseline was .79.

Adolescents retrospectively reported their 7<sup>th</sup> grade academic grades in the subjects of Swedish, English, and math. As has previously been done in samples of Swedish adolescents (Rosander & Bäckström, 2012), the six possible letter grades (A-F) were assigned a numeric value and added together as a total score where a higher score indicates higher academic achievement.

Identity synthesis was measured using five items from the Erikson Psychological Stage Inventory which indicates how confused or secure adolescents feel with their own identities (Schwartz, Mason, Pantin, & Szapocznik, 2008; Schwartz, Zamboanga, Wang, & Olthuis, 2009). Adolescents expressed their level of agreement with the five statements with five response options ranging from “strongly disagree” to “strongly agree”. Three items were reverse scored so that a higher mean score indicated a stronger sense of identity. The Cronbach’s alpha at baseline was .71.

The warmth of the parent and child relationship was measured using the child-reported parental warmth scale which has previously been used in adolescent populations (Trost, Biesecker, Stattin, & Kerr, 2007). The adolescent answered six items indicating how often each of their parents perform gestures that show kindness, pride, and love. The response alternatives were “never”, “sometimes”, and “usually”. This scale was scored as a mean of the six items for both parents where a higher score indicates a warmer relationship. The Cronbach’s alpha in this sample at baseline was .87.

Democratic parenting was measured using the adolescent-reported Democratic Parenting Scale (Wray-Lake & Flanagan, 2012). This scale contains three items indicating how much the adolescents feel that their parents listen and respect their opinions. The five response alternatives ranged from “strongly disagree” to “strongly agree”. The scale was scored as a mean of the items where a higher score indicates a more democratic parenting style. The Cronbach’s alpha was .85 at baseline. Both scales were dichotomized at their medians in some analyses.

The gender of the child was derived from the personal identification number of the child, which is assigned at birth or upon immigration and has a digit indicating the person’s assigned sex. It is likely that the relationships explored in this thesis are more related to the social construct of gender rather than the biological sex. Thus, the assigned sex is a proxy for gender and the term gender will be used throughout the thesis.

Living arrangement was obtained from the adolescent questionnaire and was categorized as “living with both parents” vs. “living with only one or neither parent”. Other sociodemographic factors were derived from the parental questionnaire; parents’ employment was categorized as “both parents gainfully employed” vs. “at least one parent unemployed”; parents’ education was categorized as “at least one parent with university education” vs. “neither parent with university education”; parents’ country of birth indicated “both parents born in Sweden” vs. “at least one parent born outside of Sweden. In some analyses, the latter variable was categorized as “both parents born outside of Sweden” compared to “at least one parent born in Sweden”.

School-level covariates related to the school composition or structure were also considered. These included school ownership (whether privately or publicly owned); proportion of parents with a university education; proportion of teachers with a higher education degree; and the proportion of students with a foreign background. This information was obtained

from the SIRIS (National Agency for Education's internet-based results and quality information system or Skolverkets internetbaserade resultat och kvalitetsinformationssystem in Swedish) Swedish education register database.

## **4.3 STATISTICAL ANALYSIS**

### **4.3.1 Descriptive characteristics**

For the purpose of this thesis, differences in baseline adolescent academic expectations according to baseline measures of several of the key variables from the four studies were investigated using chi-square tests for categorical variables and Kruskal-Wallis tests for continuous variables. The prevalence of adolescent mental health high scores and parent and child expectations and aspirations were also considered by looking at these factors at each of the three yearly waves of data collection.

### **4.3.2 Associations**

Study I and IV used logistic regression models to analyze the relationship between predictors measured at baseline and outcomes measured at one of the follow-ups. In study I, measures of academic expectations and aspirations from baseline (FG scale as both a continuous measure, and categorized into tertiles, as well as the specific expectations and aspirations questions) were used to predict mental health at one-year follow-up (dichotomized CES-DC, SDQ total difficulties, internalizing and externalizing scores).

In study IV, parental engagement, parental expectations, individual engagement in school, academic grades, identity synthesis, and mental health were measured at baseline and change in academic expectations between 7<sup>th</sup> and 9<sup>th</sup> grade was the outcome of interest. This analysis was done as two subgroup analyses, first considering those who had uncertain expectations in 7<sup>th</sup> grade and comparing those who resolved their uncertainty with those who remained uncertain in 9<sup>th</sup> grade. In a second analysis those who had decisive expectations at baseline were considered, and those who raised their expectations from 7<sup>th</sup> to 9<sup>th</sup> grade were compared to those who did not. Those who already had the highest expectations (university) in 7<sup>th</sup> grade were excluded as they did not have the potential to raise their expectations.

### **4.3.3 Accounting for hierarchical data structure**

Study II and III used multilevel logistic models for repeated measures nested within individuals. Study II modeled the relationship between predictors and outcomes during the 8<sup>th</sup> and 9<sup>th</sup> grade (2<sup>nd</sup> and 3<sup>rd</sup> follow-ups) nested within the individual adjusting for baseline potential confounding variables. Specifically, the effect of parental expectations and agreement of parent and child expectations on their children's internalizing and externalizing problems were investigated. The same analyses were also repeated using aspirations instead of expectations.

In study III multilevel models with repeated measures nested within the individual, nested within the school were used. In this analysis predictors and outcomes during 7<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup>

grade were modeled, adjusting for potential confounders which were expected to be stable over time (e.g., parents' country of birth). Specifically, the effect of total school climate and the specific dimensions of expectations and student support reported by teachers and students respectively on adolescents' university going aspirations and future aspirations and goals were investigated.

In study I, II, and IV analyses were compared to models accounting for clustering at the school level, however, estimates and model test statistics were nearly identical, so results are presented without school clustering.

#### **4.3.4 Effect modification**

Study I investigated whether the gender of the child modified the relationship between different measures of academic expectations and aspirations and mental health. Study II considered whether the relationship between parental expectations and child mental health was modified by the parent and child relationship factors of parental warmth and democratic parenting. Effect modification according to gender, parental education, and parents' country of birth were also explored. In study III, in order to explore whether relationships differed according to demographic factors and structural and functional aspects of the schools, effect modification was adopted according to gender, parents' country of birth, and parents' education, as well as the school-level factors of school ownership, proportion of teachers with a pedagogical university degree, proportion of students with parents with a university education, and proportion of students born outside of Sweden. All effect modification was tested using stratified analyses, adding interaction terms to the models, or both.

#### **4.3.5 Control for confounding**

All models in study I were adjusted for baseline mental health score, gender of the child, the child's living arrangement, parents' employment, parents' education, and parents' country of birth. Models in study II were adjusted for internalizing and externalizing scores at baseline, gender of the child, living arrangement, parents' education, parents' country of birth, and child's baseline academic grades. In study III, models were adjusted for parents' education and parents' country of birth. Models in study IV were adjusted for gender of the child, living arrangement, parents' education, and parents' country of birth. All potential confounders were selected a priori due to their potential causal associations with both the predictors and outcomes of interest.

#### **4.3.6 Secondary analyses**

##### *4.3.6.1 Analysis of non-response*

In a previous publication (Galanti et al., 2016), non-response at the school level according to several school compositional factors was explored by comparing non-participating schools with participating schools.



Additionally, selection was explored at the individual level by comparing the distribution of parents with university education and of students with foreign background in the KUPOL sample compared to the overall distribution of educated parents and students with foreign background in the counties represented in the KUPOL study using chi-square tests.

#### *4.3.6.2 Multiple imputation of missing values*

Because of a certain degree of missing data due to loss to follow-up and non-response within certain items, the analyses were repeated using multiple imputed datasets compared to the main analyses (pairwise deletion) in study I and II.

#### *4.3.6.3 Sensitivity analyses*

In study II the sample was restricted to those who did not have a high internalizing or externalizing score at baseline compared to the original sample. Similarly, in study III the analyses were repeated after excluding those with a psychiatric diagnosis prior to baseline data collection. Overall there were 274 adolescents who were identified as having a diagnosis prior to baseline data collection. This register is expected to contain all outpatient information; therefore, those who were not in the register were not excluded from the analysis. Analyses were also repeated after excluding schools with less than a 30% response rate (11 schools containing a total of 324 adolescents).

#### *4.3.6.4 Bias analysis*

E-values corresponding to the odds ratios and 95% confidence intervals of the main results included in this thesis were also calculated. The E-value indicates how strongly an unmeasured confounder would need to be associated with both the predictor and the outcome in order to completely explain the observed association (VanderWeele & Ding, 2017).

## 5 RESULTS

### 5.1 CHARACTERISTICS OF THE KUPOL COHORT

#### 5.1.1 Baseline characteristics

Baseline expectations tended to be higher among girls, those with highly educated parents, and those with at least one parent born outside of Sweden. Additionally, baseline expectations were higher in private schools and in schools with a high PESOC score. Adolescent expectations were also higher among those whose parents had higher expectations or aspirations, and mean grades, FG score FSL score, and identity synthesis score were higher among those with higher expectations. All measures of mental health problems scores were lowest among those with university expectations (Table 3).

**Table 3** Baseline academic expectations according to baseline characteristics of the KUPOL study population

		Don't know	Upper- secondary vocational	Upper- secondary theoretical	University	P-value
Demographic characteristics		N (%)	N (%)	N (%)	N (%)	
Gender	Girls	878 (47)	137 (7)	206 (11)	636 (34)	0.0183
	Boys	837 (49)	163 (10)	193 (11)	516 (30)	
Living arrangement	With both parents	1451 (48)	251 (8)	345 (11)	997 (33)	0.0637
	Not with both parents	97 (47)	28 (14)	20 (10)	62 (30)	
Parents education	University	1087 (44)	166 (7)	285 (12)	922 (38)	<.0001
	Less than university	593 (57)	133 (13)	111 (11)	207 (20)	
Parents birth country	Both Sweden	1284 (49)	232 (9)	303 (11)	824 (31)	0.0014
	Not both Sweden	305 (45)	44 (6)	67 (10)	263 (39)	
School-level characteristics						
School ownership	Private	487 (42)	95 (8)	131 (11)	449 (39)	<.0001
	Public	1228 (51)	205 (9)	268 (11)	703 (29)	
Teacher PESOC	High	512 (46)	83 (8)	116 (11)	393 (36)	<.0001
	Medium	489 (45)	95 (9)	111 (10)	383 (36)	
	Low	704 (52)	122 (9)	170 (12)	367 (27)	
Student PESOC	High	545 (45)	89 (7)	137 (11)	427 (36)	0.0335
	Medium	458 (50)	73 (8)	105 (11)	279 (30)	
	Low	702 (49)	138 (10)	155 (11)	436 (30)	

**Table 3 Continued**

<b>Other education factors</b>						
Parents' expectations	University	921 (41)	124 (6)	246 (11)	930 (42)	
	Upper-secondary theoretical	170 (57)	39 (13)	42 (14)	46 (15)	
	Upper-secondary vocational	267 (64)	65 (16)	37 (9)	49 (12)	
	Don't know	198 (62)	47 (15)	37 (12)	36 (11)	<.0001
Parents' aspirations	University	1176 (44)	190 (7)	294 (11)	988 (37)	
	Upper-secondary theoretical	95 (60)	16 (10)	23 (15)	25 (16)	
	Upper-secondary vocational	169 (66)	40 (16)	26 (10)	21 (8)	
	Don't know	117 (62)	29 (15)	18 (10)	24 (13)	<.0001
		<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	
	Grades	39.8 (10.2)	38.2 (11.0)	41.3 (9.7)	46.4 (10.1)	<.0001
	FG scale	4.2 (0.7)	4.1 (0.7)	4.5 (0.5)	4.8 (0.3)	<.0001
	FSL scale	4.6 (0.6)	4.5 (0.6)	4.7 (0.5)	4.7 (0.5)	<.0001
<b>Other individual factors</b>						
	Identity synthesis	3.7 (0.7)	3.6 (0.8)	3.7 (0.7)	3.8 (0.7)	<.0001
	CES-DC	14.6 (10.1)	16.2 (11.3)	15.0 (10.2)	13.2 (9.7)	<.0001
	SDQ	10.0 (5.4)	11.3 (5.9)	9.9 (5.1)	8.6 (5.0)	<.0001
	Internalizing	4.5 (3.3)	4.8 (3.4)	4.7 (2.9)	4.2 (3.1)	0.0020
	Externalizing	5.4 (3.2)	6.5 (3.7)	5.2 (3.2)	4.4 (3.1)	<.0001

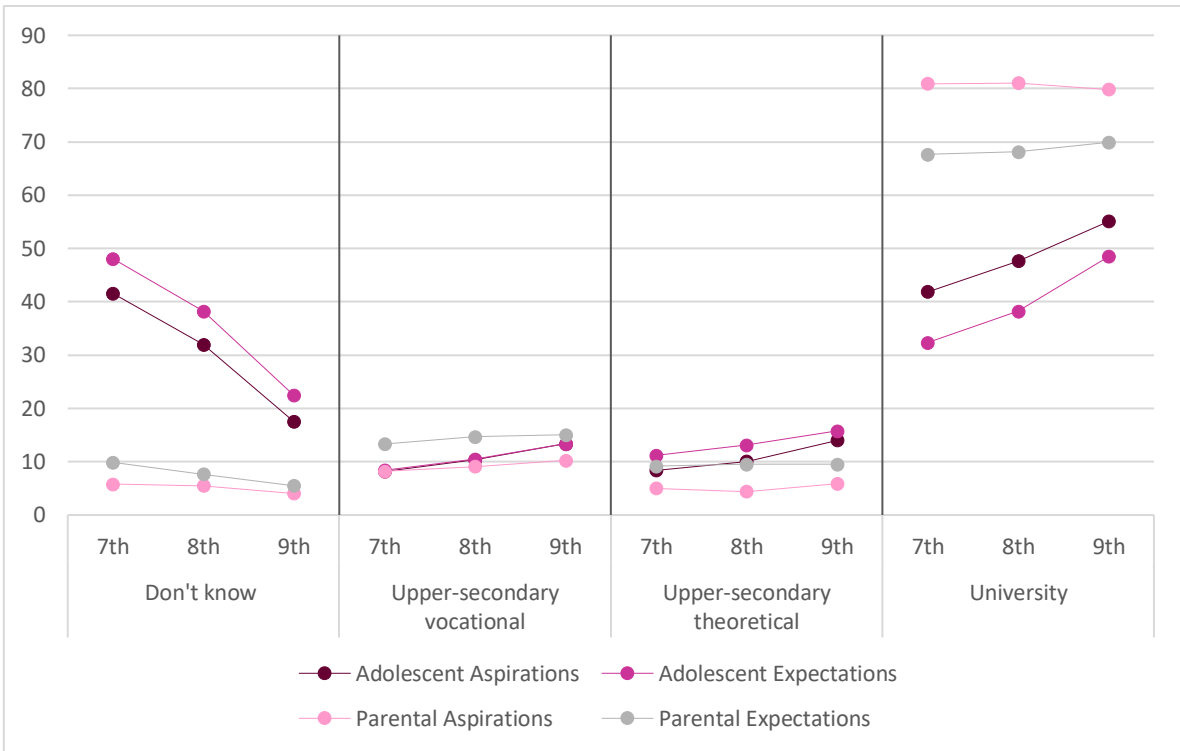
*PESOC, Pedagogical and Social Climate; FG, Future aspirations and Goals; FSL, Family Support for Learning; CES-DC, Center for Epidemiological Studies Depression Scale for Children; SDQ, Strengths and Difficulties Questionnaire.*

*P-values correspond to chi-square tests for categorical variables and Kruskal-Wallis tests for continuous variables.*

### 5.1.2 Trends in future academic prospects by grade

Aspirations and expectations tended to be quite high in the KUPOL sample, with between 32% and 55% expecting or aspiring for a university education, and between 68% and 81% of parents expecting or hoping their child will attend university. The percent of adolescents with uncertain expectations and aspirations decreased each year, while the percent expecting or aspiring to one of the upper-secondary school tracks or university increased each year. The same pattern was found for parents' expectations and aspirations, though adolescents were

more uncertain than their parents (Figure 5). Expectations and aspirations tended to be highly correlated in the KUPOL sample with a Spearman's correlation coefficient of around 0.77 during the three years. For parents, the correlation between aspirations and expectations was 0.63 on average for the three years.

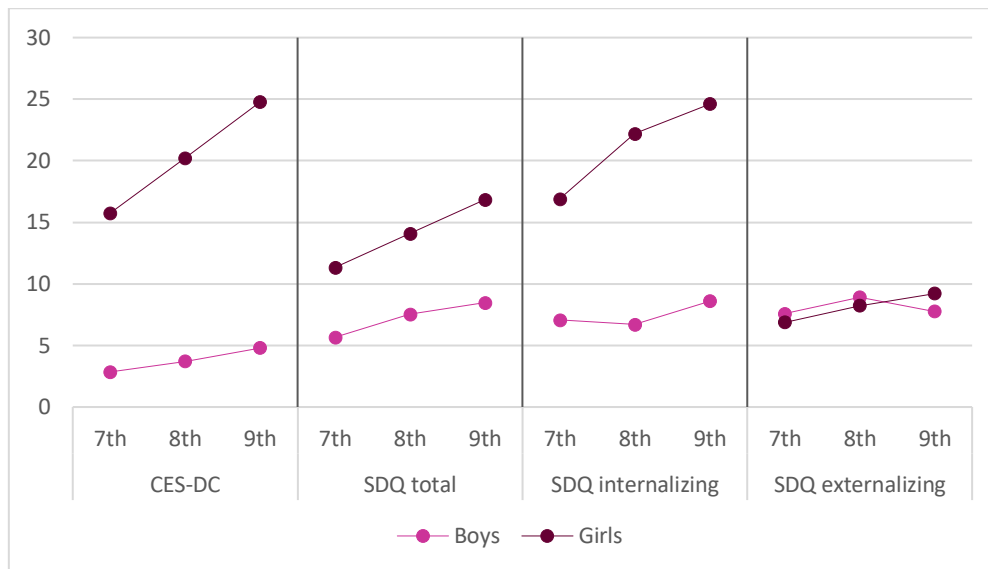


**Figure 5** Percent of adolescents and parents endorsing each level of education at each grade point

*Note that adolescent expectations and aspirations for upper-secondary vocational track are overlapping.*

### 5.1.3 Prevalence of self-assessed mental health problems by grade

The prevalence of adolescents with a high score according to any of the mental health measures tended to increase each year. The prevalence of girls reporting a high score of depressive symptoms or internalizing problems was higher compared to boys, while the prevalence of high externalizing scores were similar between boys and girls. Figure 6 shows the prevalence of boys and girls with a high score over the three data collection points according to the four measures of mental health used.



**Figure 6** Prevalence of high scores for mental health scales by gender and grade

## 5.2 ASSOCIATIONS BETWEEN FUTURE ACADEMIC PROSPECTS AND MENTAL HEALTH

### 5.2.1 Do adolescents with higher expectations experience worse mental health?

Having a higher score on the FG scale at baseline was found to be associated with a lower odds of experiencing a high CES-DC score, SDQ total difficulties score, internalizing problems and externalizing problems at the one-year follow-up after adjusting for baseline mental health, gender of the child, family living arrangement, parental education, parental employment, and parents' country of birth. A similar pattern was found when using the specific expectations and aspirations questions as predictors, but with weaker associations and less statistical power.

**Table 4** Odds ratios and 95% confidence intervals for measures of mental health problems at follow-up, according to baseline Future aspirations and Goals scale

	OR (95% CI)	
	Model 1	Model 2
<b>CES-DC score <math>\geq 30</math></b>	0.54 (0.47-0.62)	0.71 (0.59-0.86)
<b>SDQ Total Difficulties <math>\geq 18</math></b>	0.41 (0.35-0.48)	0.59 (0.49-0.71)
<b>SDQ internalizing problems score <math>\geq 9</math></b>	0.58 (0.51-0.67)	0.70 (0.59-0.84)
<b>SDQ externalizing problems score <math>\geq 11</math></b>	0.40 (0.34-0.47)	0.58 (0.48-0.71)

OR, Odds ratio; CI, Confidence interval; CES-DC, Center for Epidemiological Studies Depression Scale for Children; SDQ, Strengths and Difficulties questionnaire.

Model 1 is unadjusted.

Model 2 is adjusted for baseline mental health, gender of the child, living arrangement, parental education, parental employment, and parents' country of birth.

### 5.2.1.1 Effect modification of gender

Though girls had higher expectations and a higher incidence of depressive and internalizing symptoms, no difference in the relationship between academic aspirations and expectations and the measures of mental health was observed according to gender.

### 5.2.2 Relationship between high parental expectations and their children's mental health

Parental expectations did not appear to influence their adolescent children's internalizing problems, but adolescents with parents with academic expectations lower than university were more likely to experience externalizing problems (Table 5).

**Table 5** Odds ratios and 95% confidence intervals for mental health problems according to parental academic expectations

	Parental Expectations	OR (95% CI) Model 1	OR (95% CI) Model 2
<b>SDQ internalizing score <math>\geq 9</math></b>	High	1	1
	Low	1.25 (1.05-1.48)	1.11 (0.88-1.40)
<b>SDQ externalizing score <math>\geq 11</math></b>	High	1	1
	Low	2.49 (2.01-3.08)	1.49 (1.11-2.01)

OR, Odds ratio; CI, Confidence intervals; SDQ, Strengths and Difficulties Questionnaire.

Model 1 is unadjusted.

Model 2 is adjusted for baseline internalizing and externalizing score, gender of the child, living arrangement, parents' country of birth, parents' education, and child's academic grades.

### 5.2.2.1 The role of parent and child relationship factors

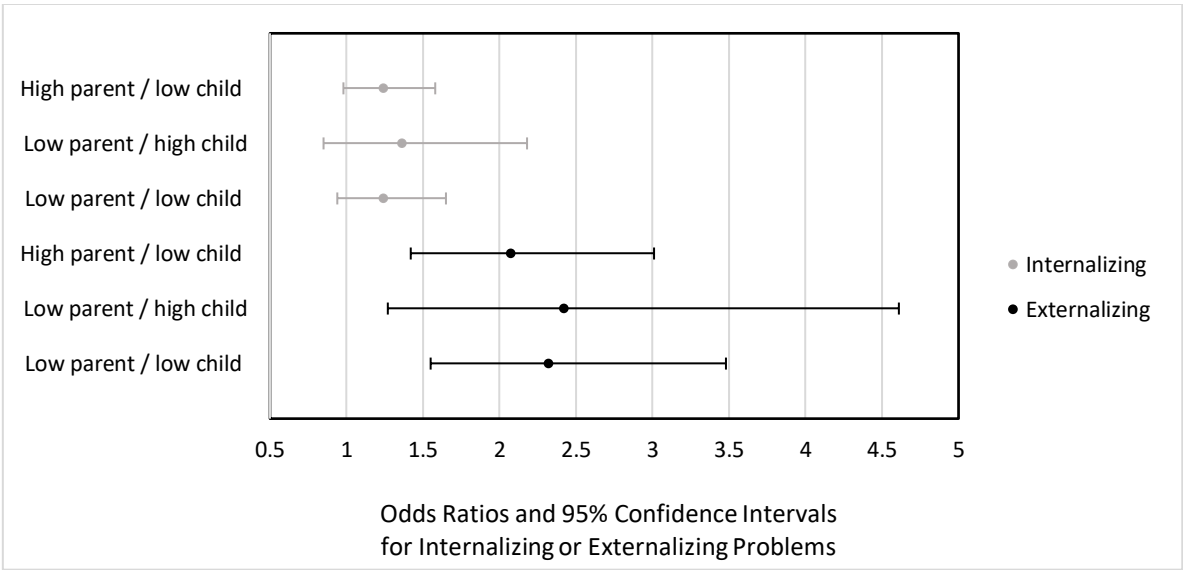
The association between low parental expectations and child externalizing problems was stronger among those who reported high democratic parenting. The association did not appear to be modified by parental warmth.

There was no strong evidence of effect modification according to gender, parental education, or parents' country of birth.

### 5.2.3 Agreement between parent and child expectations and children's mental health

Agreement of parent and child expectations did not significantly predict adolescent internalizing problems, however all categories of agreement or disagreement compared to the situation where both parents and children expected university were associated with an increased odds of high externalizing problems in the child: (OR 2.07 95% CI 1.42-3.01 for the situation where the parent had university expectations and the child did not; OR 2.42 95% CI 1.27-4.61 for the situation where the parent did not expect university but the child did; and OR 2.32 95% CI 1.55-3.48 for the situation where neither the parent nor child expected a

university education) (Figure 7). All associations were similar when using aspirations rather than expectations as the predictor.



**Figure 7** Adjusted odds ratios and 95% confidence intervals for mental health problems according to parent and child concordance of academic expectations

*The category where both parent and child expected university (high parent/high child) is used as the reference category.*

*Models are adjusted for baseline internalizing and externalizing score, gender of the child, living arrangement, parents’ birth country, parents’ education, and child’s academic grades.*

### 5.3 CONTEXTUAL AND INDIVIDUAL PREDICTORS OF ACADEMIC EXPECTATIONS AND ASPIRATIONS

#### 5.3.1 Does school climate predict adolescent academic aspirations?

Attending a school with an overall teacher-rated social and pedagogical climate classified as medium or high was associated with an increased odds of university aspirations compared to schools categorized as low. A similar pattern was found according to the teacher-rated academic and behavioral expectations subscale, as well as the teacher-rated student focus subscale. The student-rated versions of the same scale and subscales, however, were not associated with university aspirations. Neither the teacher-rated nor student-rated PESOC scale and subscales were associated with the FG scale (Table 6).

**Table 6** Odds ratio and 95% confidence intervals for adolescent university aspirations according to teacher-rated school climate measure

Predictor		OR (95% CI)	
		Model 1	Model 2
Teacher-rated total PESOC	Low	1	1
	Medium	1.42 (1.19-1.70)	1.36 (1.14-1.63)
	High	1.42 (1.16-1.73)	1.39 (1.14-1.70)
Teacher-rated expectations	Low	1	1
	Medium	1.15 (0.97-1.36)	1.17 (0.99-1.38)
	High	1.34 (1.11-1.61)	1.37 (1.13-1.66)
Teacher-rated student focus	Low	1	1
	Medium	1.20 (1.02-1.40)	1.18 (1.00-1.39)
	High	1.38 (1.12-1.71)	1.36 (1.10-1.68)

OR, Odds ratio; CI, Confidence interval; PESOC, Pedagogical and social climate instrument.

Model 1 is unadjusted.

Model 2 is adjusted for parental education and parental country of birth.

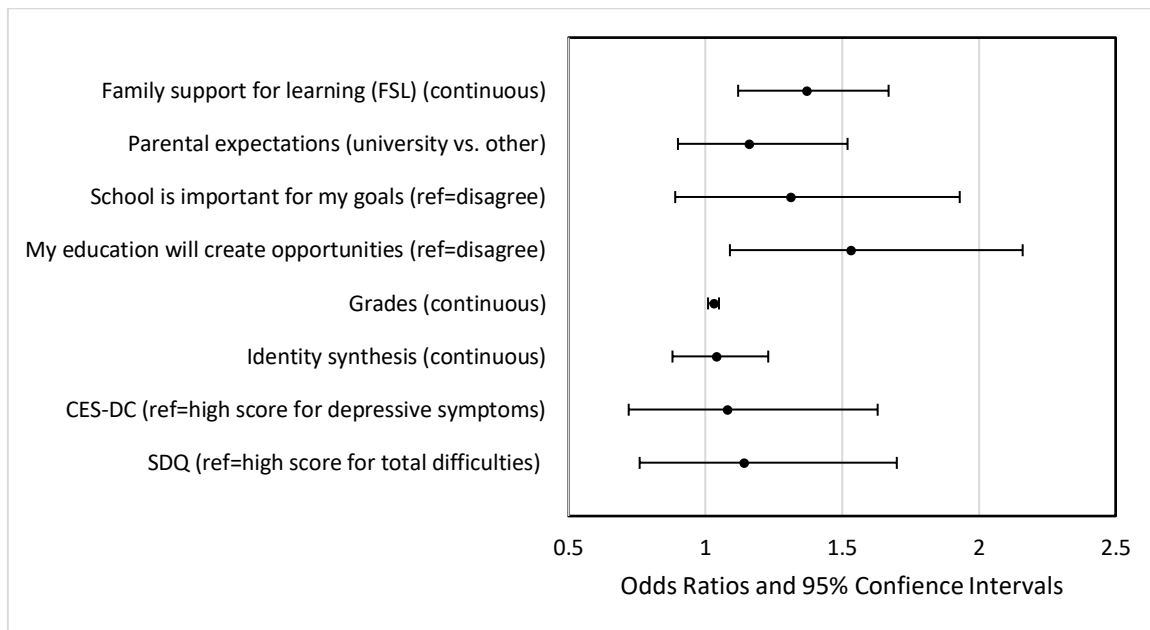
#### 5.3.1.1 Effect modification of individual and school compositional factors

There was no evidence for effect modification according to the individual level predictors of gender, parents' education, and parents' country of birth. There were also no strong moderating effects according to school ownership (public or private) and other school compositional factors: percent of teachers with a pedagogic degree, percent parents with university education or percent of students born outside of Sweden.

#### 5.3.2 Resolving uncertainty in adolescent expectations between 7<sup>th</sup> and 9<sup>th</sup> grade

A higher score on the FSL scale was associated with an increased odds of adolescents resolving their uncertain expectations between 7<sup>th</sup> and 9<sup>th</sup> grade (OR 1.37 95% CI 1.12-1.67). For the two items measuring own engagement in school, agreeing with the statement "my education will create many future opportunities for me" was also associated with an increased odds of resolving uncertain expectations (OR 1.53 95% CI 1.09-2.16), and agreeing with the statement "school is important for achieving my future goals" showed a similar trend. Higher academic grades in 7<sup>th</sup> grade also appeared to predict resolving uncertainty in expectations (OR 1.03 95% CI 1.01-1.04). Parental university expectations, identity synthesis, and positive mental health did not appear to be associated with resolving uncertainty (Figure 8).



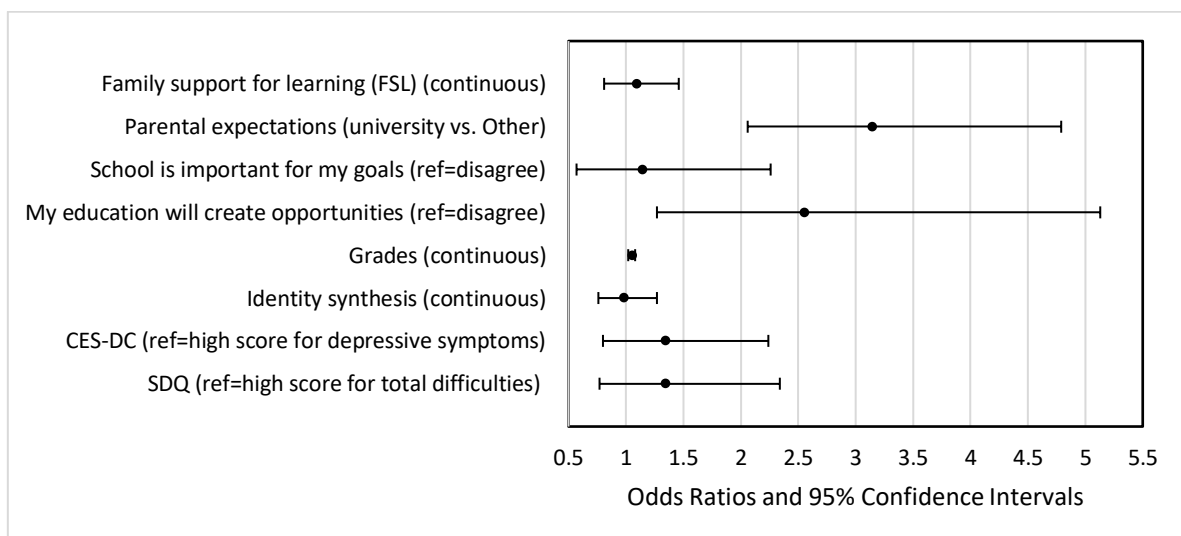


**Figure 8** Odds ratios and 95% confidence intervals for resolving uncertainty in expectations

*Models are adjusted for child's gender, living arrangement, parental education, and parents' country of birth.*

### 5.3.3 Raising adolescent academic expectations

Parental expectations and the adolescent's grades during 7<sup>th</sup> grade were associated with an upward shift in expectations between 7<sup>th</sup> and 9<sup>th</sup> grade (OR 3.14 95% CI 2.06-4.79 for parental university expectations and OR 1.05 95% CI 1.03-1.07 for grades). Agreeing with the statement "my education will create many future opportunities for me" also appeared to be associated with an increased odds of an upward shift in academic expectations (OR 2.55 95% CI 1.27-5.13). The FSL score, agreeing with the statement "school is important for achieving my future goals", identity synthesis, and absence of problematic depressive symptoms did not appear to be associated with raising academic expectations (Figure 9)



**Figure 9** Odds ratios and 95% confidence intervals for raising expectations

*Models are adjusted for child's gender, living arrangement, parental education, and parents' country of birth.*

## 5.4 SENSITIVITY ANALYSES

Participating schools differed from non-participating schools in several ways: private schools were over-represented among participating schools; the average proportion of teachers with a pedagogical university degree was slightly lower among participating schools; and the average proportion of students with a foreign background was lower among participating schools. Participating and non-participating schools were comparable according to county, number of students per teacher, average proficiency score, size of the school, number of students per grade, or average proportion of students with parents with a university education (Galanti et al., 2016).

At the individual level, the KUPOL sample had a significantly higher percent of parents with university education and lower percent of students with foreign background compared to the counties represented in the KUPOL study.

The multiple imputation used in study I and II did not reveal large differences between point estimates and standard errors when comparing to the original sample.

Restricting the sample to those free from a high internalizing or externalizing score at baseline in study II showed results consistent with the non-restricted sample. Similarly, restricting the sample in study III to those without a psychiatric diagnosis prior to baseline as well as to schools with over a 30% response did not reveal large differences in results compared to the original sample.

In the bias analysis, E-values for significant associations ranged from 1.61 to 4.27, except for grades which had an E-value of 1.11 in relation to resolved uncertainty, and 1.16 in relation to an upward shift in academic expectations. The highest E-values were found for parent and child agreement of expectations and child externalizing problems, indicating that an unmeasured confounder would need to be rather highly associated with both agreement of parent and child expectations and child externalizing problems in order to explain away the observed association.

## **6 DISCUSSION**

### **6.1 SUMMARY OF MAIN FINDINGS**

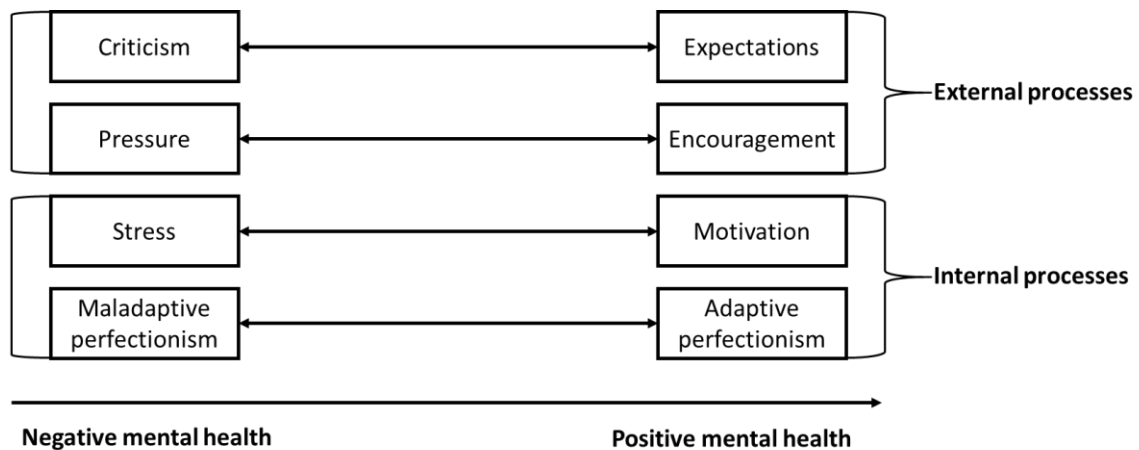
High academic expectations or aspirations from parents as well as adolescents themselves and the agreement of the two were associated with more positive adolescent mental health, especially concerning the relationship between parent and child agreement of academic expectations and child externalizing problems. These positive future academic plans were related to factors at the individual, family, and school level. Specifically, positive overall school climate and the dimensions of teacher expectations and student support as rated by teachers, were associated with university aspirations. Child academic achievement, child and parental academic engagement, and parental expectations also predicted a positive shift in academic expectations between 7<sup>th</sup> and 9<sup>th</sup> grade.

### **6.2 POSITIVE FUTURE PROSPECTS OR ACADEMIC STRESS?**

High future academic prospects showed an inverse association with mental health problems in the present studies. This is in line with several previous studies which have found high career aspirations to be associated with fewer emotional and behavioral symptoms among children (Flouri et al., 2016; Moulton et al., 2015) or high own academic aspirations to be protective against violent behavior (Bernat et al., 2012; Dubow et al., 2016; Stoddard et al., 2015), and one study which found that aiming for anything less than university was associated with getting less sleep among adolescents in Sweden (Norell-Clarke & Hagquist, 2017). Along these same lines, other empirical studies and reviews have found potentially related factors such as intrinsic motivation (Davids et al., 2016), academic engagement (Upadyaya & Salmela-Aro, 2013), and goal setting (Heckhausen et al., 2013) to be associated with better mental health and well-being. These constructs may be part of a cluster of more positive motivation and future planning which, along with having specifically high future academic prospects, appear to be related to more positive mental health. At the same time, the hypothesis that excessive academic stress and pressure to succeed may be associated with more negative mental health outcomes, as has been identified in other previous studies (Ang & Huan, 2006), cannot be ruled out. The focus of this thesis was specifically on future academic prospects rather than academic stress and demand.

Though some previous studies have suggested that high parental expectations are related to psychological distress among their children in the short-term (Costigan et al., 2010; Kanter Agliata & Renk, 2008), others have indicated a more complicated picture where the communication of expectations (Qin, 2008) and parent-child relationship factors (Quach et al., 2015) play important roles in these associations and patterns. Still others present findings in line with the second study in the present thesis, where high parental expectations are associated with positive child outcomes (Gerard & Booth, 2015; Jung et al., 2018; McCoy et al., 2016).

It appears that the concepts of high academic expectations and stress may relate to opposite ends of a spectrum representing different attitudes towards academic prospects and achievements. This spectrum may encompass both internal and external processes. Figure 10 illustrates this perspective, showing that on the negative end of the spectrum criticism and pressure from external sources such as parents or teachers as well as internal stress and maladaptive perfectionism are likely to be related to more negative mental health outcomes. On the other side, higher expectations, encouragement, motivation, and adaptive perfectionism are related to more positive mental health.



**Figure 10** spectrum of negative and positive academic attitudes

Landstedt et al. (2009) describe a similar continuum where encouraging success and demand are on opposite ends of the spectrum with opposite relationships to mental health. This theory is supported by another study which found that parental criticism was associated with maladaptive perfectionism and poor mental health, while parental expectations were associated with adaptive perfectionism and higher achievement (Harvey, Moore, & Koestner, 2017). Another study found the same relationship between parental criticism and maladaptive perfectionism and parental expectations and adaptive perfectionism but found the former to be further associated with performance-avoidance goal orientation and the latter with mastery goal orientation (Madjar, Voltsis, & Weinstock, 2015). These two types of goal orientation are closely related to intrinsic and extrinsic motivation styles, where the avoidant style individual wants to avoid external consequences, and the mastery style individual is intrinsically motivated to master a certain task for its own sake. The communication of expectations, and these theoretical opposite ends of the spectrum may also be related to socioeconomic status. Parents who have the means to support their children in whatever pursuits they choose may be able to more easily communicate high expectations in a supportive way, while parents who are more stressed about their child's monetary future may express their expectations differently. Given the high education levels of the parents in the present sample, there may be a better representation of the former communication style.

There is still potential overlap for individuals experiencing, for example, both high own expectations and high academic stress, but the present results indicate that having high expectations does not inherently imply high stress and other negative mental health outcomes.

Similarly, high parental expectations are not necessarily detrimental to their children's mental health. In the parental questionnaire used in the KUPOL study, parents were asked to freely describe some important characteristics of an adolescent's well-being. A qualitative analysis of these answers revealed that fathers pointed to the importance of cognitive well-being (defined as including aspects of aspirations, achievement, and curiosity), as well as psychological, physical, and social well-being (Mansoori, Ferrer-Wreder, & Trost, 2019). This may reveal that the academic expectations communicated to the adolescents in the present sample are likely embedded within the context of very supportive parental attitudes for the well-being of their children in many aspects of life. Again, given the high education of the parents in the KUPOL sample, these parents may be skilled in communicating their expectations and supporting their child's general well-being. It may be possible for high expectations to be experienced or communicated without inspiring high stress and demand.

### **6.3 BIDIRECTIONAL RELATIONSHIP BETWEEN FUTURE ACADEMIC PROSPECTS AND MENTAL HEALTH**

The relationship between future academic prospects and mental health poses challenges in its interpretation because both causal pathways are plausible. Subclinical mental health problems may contribute to lower future prospects or low future prospects may predict deteriorating mental health. In study I and II it was observed that individual aspirations, parental expectations, and the agreement of parent and child expectations were related to more positive child mental health, especially for externalizing problems. However, having a normal score according to either measure of mental health was not associated with a positive change in aspirations between 7<sup>th</sup> and 9<sup>th</sup> grade in study IV. In study I, the inverse association between higher academic aspirations at baseline and mental health problems at one-year follow-up remained even after adjusting for baseline mental health, though the relationship was somewhat attenuated after this adjustment. Similarly, in study II consistent associations between parental expectations or alignment of parent and child expectations and lower child externalizing problems were found even after adjusting for baseline mental health, and further, after excluding those with a high internalizing and externalizing score at baseline.

While these examples provide some evidence that parental and own future academic prospects may influence future mental health, the possibility cannot be ruled out that emerging mental health symptoms, not necessarily detected at baseline, may have influenced parental and own expectations which further predict mental health problems. ADHD symptoms, for example, have previously been found to be associated with lower academic expectations (Metsapelto et al., 2017; Stickley et al., 2019). Thus, it is expected, to some extent, that academic expectations and mental health reinforce each other over time and may result in a spiral relationship. This idea is supported by a previous study which found that children's externalizing behavior were a better predictor of parental expectations than the child's actual academic achievement, and that these expectations further predicted children's own expectations and achievement five years later (Rutchick et al., 2009). Conduct problems in children have also been said to develop and worsen as a result of ongoing reinforcement of

negative behaviors from both parents and children (Smith et al., 2014). This pattern of negative reinforcement could result in both parents and children lowering their academic expectations, and further exacerbating the child's externalizing problems.

#### **6.4 FUTURE ACADEMIC PROSPECTS SHAPED BY CONTEXT**

Both the school and family context appear important for the development of adolescent future academic prospects. These contexts are examples of microsystems which communicate rules and norms to the individuals embedded within these systems (Bronfenbrenner & Morris, 2006). Within this framework, it is not surprising that school climate as a whole, as well as the specific dimensions of teacher support and academic and disciplinary expectations predicted adolescents' aspirations to attend university in study III. These factors, however, only appeared important when rated by the teachers and not when the 9<sup>th</sup> grade students assessed these factors.

The instrument used to assess school climate was created with the idea that school climate is a group-level phenomenon and cannot be validly measured on an individual level (Grosin, 2004). Thus, unlike most previous studies, school climate was measured as a contextual variable rather than measuring the same individual's perception of school climate and future academic prospects. One previous study also explored the specific dimensions of student-rated support and disciplinary expectations measured on both an individual and an aggregated level (Lindstrom Johnson, Pas, & Bradshaw, 2016). At the individual level, these factors were associated with higher expectations, but on the aggregate level no such relationship was found. This indicates that there was only an association when the same informant answered, and that there was not an association on a contextual level. One recent Bulgarian study also using the teacher-rated PESOC instrument found a better-rated school climate to be associated with lower academic aspirations among Roma minority youth only (Dimitrova et al., 2018). This may, however, be related to the specific experience of minority youth in this context. Other previous studies have found various aspects of a positive school climate to predict higher future academic prospects when these factors were measured by the same individual (Israelashvili, 1997; Madarasova Geckova et al., 2010; Marjoribanks, 2002), and further, when students' reported their perceptions of how well their own needs were being met at school within the framework of Stage Environment Fit Theory (Smith et al., 2016).

Students may have a difficult time rating school climate factors as a whole, and even when these measures are aggregated, they may still be capturing various students' perception of their own classroom and individual experience, rather than the entire school context. Thus, the aggregated experience of the students may be too heterogeneous to accurately reflect the school climate as a whole. Some studies using student-rated measures of school climate tend to focus on the peer social climate of the school and more specifically on peer relationships (Gerard & Booth, 2015; Israelashvili, 1997). Students' perceptions of peer relationships and peer support may be an important school climate factor for shaping adolescents' aspirations which was not addressed in the present study.

That the teachers' perceptions of the school climate is associated with students' university aspirations indicates that the teacher-rated measures capture important aspects of the school climate not reported by the students' themselves. It may be that overall school climate is more accurately measured by teachers as they have a better understanding of how the school functions as a whole. Almost all known previous studies of school climate and academic expectations, aspirations, or engagement, however, have only focused on the student perspective, making study III novel in this regard.

The importance of the family context in shaping adolescents' academic expectations was also apparent in study IV, where parental academic expectations for their child and engagement in their child's education predicted a positive shift in academic expectations. Previous studies have also consistently found parents' expectations for their children's education to predict or mediate adolescents' own academic expectations and aspirations (Gutman et al., 2012; Rimkute et al., 2012; Rutchick et al., 2009). Other studies have pointed to the importance of parental engagement in their child's education for predicting children's own expectations (Frostick, Phillips, Renton, & Moore, 2016; Moulton et al., 2015; Rutchick et al., 2009). Still others have not been able to establish this latter association (Hartas, 2016; Iovu, 2015). This may be because these studies focus on parents' interactions with the school and teachers, which could be a sign that the student is already struggling in school and may thus have lower academic expectations.

It appears that adolescents may need different types of parental support based on where they are in the development of their academic expectations. Those who were undecided in their expectations seemed to benefit more from their parents' engagement and support for learning in their transition to resolved expectations, while those who had settled on lower expectations early benefitted more from their parents having high expectations. The softer touch of parental educational engagement and support may be more helpful for adolescents still trying to decide what they want to do, while the more concrete expectations seem to help adolescents shift their low expectations upwards. Uncertainty may be a healthy part of development (Schoon, Gutman, & Sabates, 2012) which only needs slight encouragement through parental support for learning.

## **6.5 EDUCATIONAL FACTORS IN RELATION TO FUTURE ACADEMIC PROSPECTS**

Other factors related to education also play an important role in the development of academic expectations: specifically, academic achievement and academic engagement. This finding is in line with Expectancy-Value theory, where ability self-concept and perceived value are important in determining motivation and goals (Wigfield & Eccles, 2000). The relationship between academic expectations and achievement, however, can logically function in both directions. On one hand, those who set high academic goals may be more motivated to achieve higher academic grades. On the other hand, individuals may set their future academic goals based on their current achievement in school. While some previous studies have found academic achievement to be related to academic expectations (Cunningham, Corprew, &

Becker, 2009; Khattab, 2005) others have questioned the extent to which adolescents' academic expectations reflect their actual ability or achievement (Andrew & Hauser, 2011; Trusty, 2000). In study IV the results revealed that positive changes in academic expectations are predicted to some extent by the adolescents' academic grades indicating that, in this case, adolescents use their academic achievement to set their future academic goals.

Academic engagement and future prospects are so closely related they are sometimes indistinguishable (Heckhausen et al., 2013). The FG scale used in studies I and III includes items about both specific academic aspirations as well as student engagement and importance put on school. This scale functioned somewhat differently than the more straight-forward items measuring academic expectations and aspirations. For example, in study I the FG scale had a much stronger inverse relationship with mental health problems compared to the expectations and aspirations questions, and in study III, the teacher-rated school climate factors predicted university aspirations but showed no association with the FG scale. It may be that the FG scale is a better measure of intrinsic motivation while the specific expectations and aspirations questions represent extrinsic motivation in the form of a more specific external goal. Therefore, in study I intrinsic motivation is more closely related to mental health, and in study III extrinsic motivation is more easily influenced by the school context. This is in line with Self-Determination Theory where intrinsic motivation is closely related to well-being and extrinsic motivation is more easily influenced by outside sources (Deci & Ryan, 1985).

In study IV, because some of the items of the FG scale referred specifically to future planning, only the items more representative of student engagement alone were used as potential predictors of positive shifts in academic expectations. Agreeing with the statements that school will provide many future opportunities predicted a positive shift in academic expectations. This finding is in line with several previous studies that describe the importance of engagement and motivation in school for the development of positive future academic prospects (Gutman & Schoon, 2018; Thiele et al., 2017; Walkey et al., 2013). However, agreeing with the statement about school being important for future goals did not show a significant association with either measure of improvement in expectations. It may be that perceiving opportunities represents a more optimistic perspective, which is important in the current landscape. Perhaps it is easier for adolescents to believe that school will open up doors for their future in general even if they have not yet committed to occupational or life goals beyond education at this point.

## **6.6 UNCERTAINTY IN EXPECTATIONS**

Few previous studies have considered uncertainty in academic expectations or aspirations. Those studies which have considered young peoples' uncertainty tend to report this as being a much less common phenomenon than what was found in the KUPOL study. A review of uncertainty in expectations reported that between 7% and 22% of adolescents in samples ranging from 11-years-old to 16-years-old were uncertain about their aspirations (Schoon et al., 2012). At the baseline measure of the KUPOL study, nearly 50% of adolescents were



uncertain about their expectations and around 40% were uncertain about their aspirations. In line with this review (Schoon et al., 2012), however, uncertainty decreased with age in the KUPOL cohort.

The meaning of uncertainty in academic expectations may look quite different in different contexts depending on when educational transitions and decisions are expected to occur. For example, that adolescents are expected to decide on an educational track at the age of 16 in Sweden differs from the United States where high school curriculum is more similar for all students until the age of 18. Therefore, it may be more problematic for a 15-year-old in Sweden to be uncertain of their future academic prospects compared to a student of the same age from the United States. Furthermore, expecting or aspiring to go to university may carry a degree of uncertainty in itself in that just because someone knows that they want to continue their education does not mean that they know what they want to study or what kind of career they want to have later on. Educational systems in different contexts also tend to differ in terms of how much room there is for exploration during university studies. In Sweden there are less general education requirements and students choose a program to study from the beginning, which differs from the liberal arts model in the United States where students take general required courses in the beginning and then take courses relevant to their major later on.

Decisions around vocational and educational planning have been said to be closely related to identity formation (Marttinen et al., 2018). Adolescence is an important time for making life decisions and evaluating values and priorities (Erikson, 1968). For this reason, one would expect identity development to influence the way that expectations and aspirations develop. Identity synthesis and academic expectations showed a positive association in the baseline assessment; however, study IV did not reveal an association between identity synthesis at baseline and a positive shift in academic expectations between 7<sup>th</sup> and 9<sup>th</sup> grade. These two processes are likely to develop simultaneously, and therefore a lagged relationship was not present. Furthermore, the extent to which identity development is resolved in adolescence has been questioned (Hatano & Sugimura, 2017), and there is empirical evidence that young people reconsider and revise their identity commitments throughout this period (Becht et al., 2017).

It is important to reflect on when it is developmentally appropriate to make decisions regarding educational and vocational trajectories, especially considering that this varies by geographical context and over time. It may be that individuals who remain undecided in their expectations and aspirations into their teenage years are struggling to fit into a system that pushes them to make decisions that they are not developmentally ready for.

In the KUPOL study, it did not appear that having decided on academic expectations or aspirations lower than university resulted in better mental health than having undecided expectations. Study I did not reveal an obvious difference between those expecting or aspiring to upper-secondary school and those who were uncertain about their expectations or aspirations compared to those with university expectations or aspirations. Both show a trend

towards being associated with worse mental health. The analysis of baseline characteristics also shows that those with upper-secondary vocational expectations had the lowest mean grades, FG score, FSL score, and identity synthesis score, and also the highest score for all mental health measures. This is also in line with one previous study which found that those with no aspirations to attend secondary school were indistinguishable from those aiming for one of the lower qualification certificates in terms of achievement and motivation (Walkey et al., 2013).

## **6.7 THE ROLE OF GENDER**

Previous quantitative studies have concluded that girls are suffering worse mental health in part because of too high academic expectations or demands (Giota & Gustafsson, 2017; West & Sweeting, 2003). Additionally, qualitative studies have found that girls tend to feel much more pressure and stress about school compared to their male counterparts (Låftman et al., 2013), and that girls internalize their own responsibility for academic achievement much more than boys do (Landstedt et al., 2009).

In the KUPOL study, girls tended to both have higher own and parental academic expectations and aspirations as well as more internalizing mental health problems, which is in line with the conclusions from the studies cited above. However, the relationship between academic aspirations and mental health did not appear to differ between boys and girls. If anything, there was a trend towards a stronger relationship concerning higher expectations and fewer mental health problems among girls. There was also no obvious difference between boys and girls concerning the relationship between the school climate measures and university aspirations. It may be that the culture for girls to aim high and succeed is so strong, that the girls who actually do not have high expectations or aspirations are breaking these norms and may suffer mental health consequences in doing so. It is also possible, as previously noted, that because the measures of academic expectations and aspirations did not necessarily capture stress related to academic performance, that a subgroup of girls with high expectations who also experienced high academic stress were neglected in the analysis. It is even possible that those experiencing the most academic stress were actually so overwhelmed that they did not set high expectations for themselves because they didn't believe that they were good enough. It is, however, only possible to speculate given that only future academic prospects were measured in this study.

## **6.8 ACADEMIC PROSPECTS IN AN EGALITARIAN EDUCATIONAL SYSTEM**

In the KUPOL study, there was a consistently small gap between expectations and aspirations. Most adolescents' expectations were the same as their aspirations, and the same was true for their parents. This could be explained by the more egalitarian educational system in Sweden. Studies from the US and UK have reported lower correlation between academic expectations and aspirations than were found in the KUPOL cohort (Boxer et al., 2011; Khattab, 2015). Another US study found that only 39% of students who wanted to attend university saw this as a realistic option, but this number doubled when students had

Children's Development Accounts where they were able to save money for university tuition (Elliott, 2009). This indicates that a great deal of the barrier to a university education and the subsequent gap between expectations and aspirations can be explained by the cost of university tuition

Most research about academic expectations and aspirations comes from the United States, which makes it somewhat difficult to transfer findings to the Swedish context which has a very different educational system. In Sweden, universities do not charge tuition to Swedish students or students from other EU states. Swedish students are also entitled to a stipend and a low interest loan while they are studying, making higher education more accessible and equitable compared to many other contexts and allowing the possibility of upward social mobility. For this reason, studying these relationships in such a setting may help to remove some of the confounding due to socioeconomic status. However, there is still a strong pattern of children from more highly educated parents being more encouraged to continue their education (Davis-Kean, 2005; Dubow, Boxer, & Huesmann, 2009), and this pattern still applies in a more egalitarian system such as Sweden (Ianelli, 2002). Staying in education longer also means postponing entering the labor market and earning a formal income which is more difficult for those already in a lower socioeconomic position. That aspirations and expectations were so similar in the KUPOL study indicates that these adolescents and their parents may base their aspirations on attainable and realistic goals at a quite young age.

## **6.9 CASUALTIES IN THE CURRENT ACADEMIC SYSTEM**

While the Swedish educational system is relatively egalitarian compared to other contexts, inequalities in performance are increasing between schools (OECD, 2015) and between individuals both in terms of the highest and lowest performers and in terms of high and low socioeconomic status (OECD, 2016). At the same time, the student-centered approach for learning puts a great deal of responsibility on the student for their own learning, which may be easier for some students than for others (Kornhall, 2013). These inequalities in the educational environment are likely to make some students feel that they do not fit into the current system and may result in perceived lower future prospects in education.

Those with the highest expectations tend to come from the most positive school and family contexts and experience better mental health. It is important to consider those who do not have high future academic prospects and why this may be. There seems to be a cycle at play where students are segregated into schools at a young age based on sociodemographic factors, and where these inequalities in academic performance grow based on these same sociodemographic factors. The student-centered approach to learning rewards those with the most family support and ability to teach themselves and manage their own time and leaves behind those who struggle in these capacities (Kornhall, 2013).

The finding that expectations and aspirations tended to be higher among adolescents with at least one parent born outside of Sweden is consistent with other studies from Sweden (Kaya & Barmark, 2019) and Norway (Friberg, 2019). One explanation is that adolescents with

immigrant background expect to experience more discrimination in the labor market, and thus prioritize obtaining a university degree (Kaya & Barmark, 2019). Thus, the accessibility of higher education in the Scandinavian countries combined with the discrimination experienced by those with immigrant background may partially explain the observed higher future academic prospects among those with an immigrant background.

Previous studies have focused on the importance of background sociodemographic factors such as gender (Kirk et al., 2012; Mello, 2008) ethnicity (Irvin et al., 2016; Nitardy, Duke, Pettingell, & Borowsky, 2015) and socioeconomic status (Chykina et al., 2016) in predicting adolescents' future academic prospects. While characteristics such as parental education were associated with academic expectations in the KUPOL cohort, so too were more modifiable factors like the school and family contexts. It may be possible to break some of these cycles with more attention given to equality and supportive school and family environments. In other words, it is possible for the microsystems of the family and the school to buffer some of the processes taking place at the exosystem and macrosystem level.

## **6.10 UNMET EXPECTATIONS**

The studies in this thesis focused on academic expectations and aspirations without investigating whether these educational prospects were met later on. Some previous studies have pointed to psychological consequences of not fulfilling *career* aspirations (Carr, 1997; Gjerustad & von Soest, 2012; Hardie, 2014) or general life aspirations (Zhang, Kong, Gao, & Li, 2013). It has also been found that disengaging with demanding career goals when opportunities are limited is associated with better well-being (Tomasik & Silbereisen, 2012). However, studies which focus specifically on educational expectations or aspirations rather than occupational or general aspirations have sometimes found the opposite. For example, one US study found that the relationship between unmet educational goals and mental health problems is explained by low attainment in and of itself rather than falling short of one's expectations (Reynolds & Baird, 2010). Other US studies confirm that those who did not meet their educational goals in the short term or longer term were no more depressed or less satisfied with their own progress compared to those who did meet their goals (Martin & Gardner, 2016; Villarreal, Heckhausen, Lessard, Greenberger, & Chen, 2015). While the impact of unmet educational aspirations is beyond the scope of this thesis, the previous literature would suggest that having high educational expectations or aspirations is not necessarily dangerous even if one does not meet their goals.

## **6.11 LIMITATIONS AND METHODOLOGICAL CONSIDERATIONS**

### **6.11.1 Selection bias, attrition, and generalizability**

The KUPOL cohort is limited by a rather low response rate at both the school and individual level which resulted in a selected sample over-representing highly educated and Swedish born parents at both the individual and school level (Galanti et al., 2016). There is not, however, particularly strong reason to believe that the direction of the observed associations would be different among other socioeconomic groups. Additional stratified analyses

according to sociodemographic characteristics such as parents' education and country of birth in study II and study III did not reveal obvious differences in association according to these factors. The possibility remains that the results of the four studies are influenced by selection bias considering that there may be reasons for non-participation related to both the predictors and outcomes in the four studies. For example, those experiencing the worst mental health problems and those with the lowest academic expectations may have been less likely to participate in the study which would result in an underestimation of this association.

Despite the low response rate, retention in the cohort after recruitment was around 95% for each follow-up. With this attrition, and some internal missing answers, there was up to 22% missing data in some variables. Multiple imputation was used as a sensitivity analysis in studies I and II and there were no large differences between point estimates and standard errors when comparing the original to the multiple imputed sample.

The selection is likely to have resulted in some limitations in terms of generalizability. This selection may have restricted the range of predictors and outcomes as well as the magnitude of the associations which may not be the same in other samples. The results and conclusions may not be generalizable to different age groups or different educational contexts. This thesis, however, contributes to and compliments the existing literature from different age groups and contexts.

### **6.11.2 Information bias**

There are strengths and limitations to different ways of measuring mental health. If one relies on clinical diagnosis alone, only the cases who seek professional help are detected. While this may be appropriate regarding certain research questions, in the case of adolescent mental health, it may be important to consider pre and sub-clinical symptoms. While these symptoms may not have led to a formal diagnosis, they may quite seriously affect the adolescent. These cases may also be the ones that are most preventable. Two instruments and several subscales to measure both internalizing and externalizing mental health problems were used in the studies included in this thesis. Because these scales were skewed, with many more adolescents exhibiting very few or no symptoms than experiencing many or all symptoms, the recommended and validated cutoff points most appropriate for the present population were used to indicate whether the adolescent exhibited problematic mental health symptoms or not. While it could be argued that these cutoff points are somewhat arbitrary, additional analyses using different cutoff points and using these scales in their original, continuous form revealed consistent results. Any misclassification due to the cutoff points used, would be non-differential.

There is risk of misclassification in measuring academic expectations, especially concerning the "I don't know" answer for both parents and children. This answer could represent different attitudes for different people, and at the very least, the "I don't know" category for both parents and children is likely to be a quite heterogeneous group. Additionally, university was the highest educational choice available, and options such as graduate school or

professional degree were not given. Specific patterns unique to those with the very highest expectations or aspirations may have been neglected by measuring all university education as one category.

The information on academic grades was also of lower quality because adolescents retrospectively reported their grades from previous years. There is some risk of recall problems and the official grades from the school registers would have been a better measure if this would have been available. However, even if adolescents have difficulty remembering their exact grades, they would not be likely to be too far off. It is more likely that a person might mix up a C and a B rather than an A and an F.

Using child-reported measures of parental warmth and democratic parenting may be subject to variation depending on when the construct was measured. However, the child-report of these measures reflects their own experience of their relationship with their parents, which is arguably a better measure than the parent report of these scales. Using single items from the FG scale to estimate student engagement is also a limitation as these items are intended to belong to a scale, however, using items directly relating to future academic plans to predict adolescents' academic expectation would not be very informative.

Though the overall sample size in KUPOL was quite large, some stratified and other sub-analyses may have lacked the power to detect modest effects.

### **6.11.3 Confounding**

Though a variety of sociodemographic factors in the four studies were adjusted for, there are several potential unmeasured confounders which should be considered. The mental health of the parents is one such factor that is likely to play a role in the associations which were investigated in the four studies. It is well established that parental mental health problems predict their children's mental health problems (World Health Organization and Calouste Gulbenkian Foundation, 2014), but it is also likely that parental mental health affects a variety of other factors such as academic expectations, child academic achievement, and choice of child's school. While controlling for factors such as parental education and living arrangement may have provided partial control for parental mental health, there is likely to be residual confounding.

Another source of potential confounding may be the child's cognitive ability, which the KUPOL study lacked information on. Though academic grades may be a partial indicator, cognitive ability is more complex and not always directly reflected in academic achievement. Cognitive ability may be related to mental health, own academic expectations, parental academic expectations, as well as choice of school. Furthermore, there may be other individual factors which are important to the associations studied in this thesis but which there was not information on. One important factor in this regard may be general optimism which has been found to positively relate to mental health and well-being (Gallagher & Lopez, 2009; Macleod, 2017), and is likely to influence general future planning and perceived prospects. Additionally, self-efficacy has been found to be related to career

aspirations (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001) and is likely to be closely related to several of the studied associations but was not measured in the KUPOL study. Finally, previous physical illnesses resulting in pediatric visits have been found to predict mental health problems in adolescence (Karukivi & Haapasalo-Pesu, 2017). Thus, there may be residual confounding due to illness during childhood which may be associated with both mental health and some of the other studied variables. In the case of the association between parent and child agreement of academic expectations and child externalizing problems, the bias analysis revealed e-values greater than four, indicating that an unmeasured confounder would have to be highly associated with both the exposure and the outcome.

In general, this thesis investigated complex mechanisms that are difficult to disentangle. Though these were longitudinal studies, it is still not possible to establish a completely temporal relationship because the way that the studied variables have developed in the time before data collection or the time in between follow-ups is not known. It should be kept in mind that several of these relationships are likely to be bidirectional and reinforce each other over time.

## **6.12 IMPLICATIONS AND FUTURE RESEARCH**

### **6.12.1 Implications**

The studies in this thesis point towards important general implications for the relationship between educational environment and mental health among adolescents. First, adolescents may need to learn how to set goals and to explore aspects of education that are intrinsically interesting and motivating. Parents may provide support at this stage by conveying high expectations to their adolescent children and by encouraging intrinsic motivation, at the same time avoiding excessive pressure, demand, and criticism. It is also crucial that parents are prepared to hold positive communication about expectations. Furthermore, parents should practically engage in their children's education and learning. Teachers and schools may also try to develop curricula and pedagogic strategies which increase expectations perhaps through an improvement of self-esteem. Schools may also need to refine dimensions of school climate that are important from the students' perspective. Individualized curricula may be needed to support students who are at risk of failing in the current academic system. Equality should always be kept in mind when decisions about educational policy are made.

### **6.12.2 Future research**

The studies in this thesis did not focus on the very short-term perspective of academic expectations and aspirations such as what grades one hopes to or expects to receive or how they hope to or expect to do on an exam. This may be more representative of the stressful side of the spectrum of academic experiences, and may relate more negatively to mental health, whereas long term expectations and aspirations may be more related to goal setting and intrinsic motivation. Future studies should focus on differentiating these two concepts and understanding their overlap.

It may also be important to investigate how peers influence the formation of expectations and aspirations, as peer relationships become extremely important during this stage of development. Previous studies have found peer relationships and peer academic expectations to be important predictors of adolescents' own expectations (Andrew & Flashman, 2017; Carolan, 2018; Raabe & Wolfer, 2019; Roth, 2017; Wang, Degol, & Amemiya, 2019), but it is important to further understand how peers select and influence each other in relation to their future academic planning. Few studies have considered sibling characteristics and relationships in relation to future academic prospects (Wang et al., 2019; Yucel & Yuan, 2015), and these association also remain to be elucidated.

Future studies should also focus on long-term outcomes of different academic expectations or aspirations during adolescence, for example, mental health and academic attainment later in life. It would be particularly interesting to consider those with uncertain expectations during adolescence to better understand if this is a normal developmental process or the start of a more problematic trajectory, and further, when it is developmentally appropriate to make educational decisions.

It would of course also be important to give adolescents the platform to talk about their own formation of expectations and how this relates to their mental health. Thus, more qualitative studies would also be important for understanding some of the perceptions and processes which are not possible to capture with epidemiological studies.

## **7 CONCLUSIONS**

A better understanding of the relationship between adolescent future academic prospects and mental health as well as factors which predict high future academic prospects is of high importance. This is especially important in a context of increasing labor market and educational demands and increasing occurrence of mental distress among youth. This thesis indicates that having high future academic prospects, both own and parental, is related to better mental health in adolescence. Furthermore, high future academic prospects are influenced by factors on the individual, family, and school level: specifically, positive school climate factors, parental expectations and engagement in their children's education, and adolescents' academic achievement. In light of these findings, it is important to find positive ways to encourage adolescent future prospects at the family and school level with the potential to improve their mental health.



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## APPENDICES

### **Appendix 1** Items from the Future aspirations and Goals subscale of the Student Engagement Instrument

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I plan to continue my education following high school

Going to school after high school is important

School is important for achieving my future goals

My education will create many future opportunities for me

I am hopeful about my future

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### **Appendix 2** Items from the Family Support for Learning subscale of the Student Engagement Instrument

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My family is there for me when I need them

When I have problems at school my family is willing to help me

When something good happens at school my family wants to know about it

My family wants me to keep trying when things are tough at school

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### **Appendix 3** Items from the expectations subscale of the teacher version of the Pedagogical and Social Climate instrument

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Our principal has high demands and expectations for pupil academic results

There is a norm among staff in this school that all pupils have the ability to reach the curriculum goals concerning basic knowledge and skills

The principal has high demands and expectations of pupil behavior

All members of the staff in this school have high expectations for pupil behavior

---

**Appendix 4** Items from the student focus subscale of the teacher version of the Pedagogical and Social Climate instrument

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Social relationships between teachers and pupils are good in this school

It is a well-established policy that teachers show respect for pupils

It is a well-established policy that pupils are encouraged to be responsible for their studies

Pupils conduct many activities that they initiate on their own

Teachers in this school have time for pupils who wish to speak about something other than teaching and learning

The principal encourages the development of a pleasant school environment for the pupils

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**Appendix 5** Items from the expectations subscale of the student version of the Pedagogical and Social Climate instrument

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I feel that almost all of my teachers believe that I can pass exams and get good grades if I want to

In this school, teachers expect pupils to pass all subjects

All my teachers believe I can get accepted into high school (three years theoretical or vocational track)

My teachers think that classes should be peaceful and quiet

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**Appendix 6** Items from the teacher support subscale of the student version of the Pedagogical and Social Climate instrument

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If you start to study more, the teachers will immediately notice

If there is something you do not understand you can be almost certain that the teacher will help you during class

I can ask my teacher for help outside the classroom if there is something I do not understand during class, or when doing my homework

I usually have enough time to complete my tasks during class

I can speak with my teachers about matters not related to school

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**Appendix 7** Items from the identity subscale of the Erikson Psychological Stage Inventory

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I change my opinion of myself a lot

I feel mixed up

I can't decide what I want to do with my life

I know who I am

I feel involved

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**Appendix 8** Items from the Democratic Parenting scale

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My parents let me have my say even if they disagree

My parents respect my opinions

In my family, we take the time to listen to each other's views

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**Appendix 9** Items from the Parental Warmth Scale

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Bring up the positive and seldom negative things about me

Show how proud she/he is of me

Do small things that make me feel special

Show she/he cares for me with words and gestures

Show her/his love for me without a cause – almost regardless of what I do

Praises me for no special reason

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